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BASKET II—IMPLEMENTATION OF THE FINAL ACT OF THE CONFERENCE ON SECURITY AND COOPERATION IN EUROPE: FINDINGS ELEVEN YEARS AFTER HELSINKI

REPORT

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CHAPTER ONE

INTRODUCTION

Summary

The Chapter of the Final Act entitled "Cooperation in the Field of Economics, of Science and Technology, and of the Environment," is a set of guidelines for East-West economic relations. The overall objective of this chapter has been to increase commercial and scientific exchange between the widely disparate economic systems of East and West. This objective was based largely on the principle that mutually beneficial economic and scientific cooperation promotes understanding and harmonious relations between states, thereby contributing to the larger goals of peace and security in Europe.

The second basket of the Final Act signifies governmental endorsement of East-West commercial and scientific exchanges, as it contains declaratory language stating the signatories' resolve to promote such activity. The actual, operative provisions of Basket II in the Final Act and the Madrid Concluding Document, however, do not commit governments to intervene in private trading activity, such as with official credit facilities, in order to increase the level of trade beyond what market forces would normally permit. They also do not call for removing restrictions on the transfer of technology, which are in place for foreign policy and national security interests. In short, Basket II does not represent a promise by Western governments to increase the level and expand the scope of East-West trade simply because such trade is believed to bring certain political benefits.

Instead, Basket II represents a promise by all the governments of the participating States to create conditions that allow for the development of East-West commercial activity on a sound economic basis. In other words, as Willem J. Elzinga of the Netherlands Ministry of Foreign Affairs has pointed out, "the Final Act indicates clearly that economic relations can be extended and enhanced if this is sufficiently attractive to private enterprise." [1] This takes the form of substantive, specific measures.

For example, the participating States declared their intention to make business negotiations and activities more efficient. They further pledged to improve facilities and working conditions in various ways and to facilitate conditions for closer contacts between representatives and experts of seller firms on the one hand, and buyers as well as user firms on the other. In addition, the participating States declared their intention to ensure the regular publication and dissemination of timely economic and commercial information which is necessary to appreciate market opportunities. These trade issues are often taken for granted in Western trade with other regions of the world but continue to be problems in East-West trade.

The signatory states also pledged to encourage industrial cooperation—including joint production and sales, exchanges of technical information, mixed companies and joint research—between the Western market and the Eastern nonmarket economies. Such cooperation is much more complicated than the simple, one-time sale or purchase of goods or services. It creates certain unique difficulties which require attention, such as the need to repatriate profits, avoid double taxation and protect property rights. Despite differences between industrial cooperation and conventional trade, however, both share the need for better business contacts and facilities as well as improved economic and commercial information. Thus, many of the areas contained in the section of Basket II dealing with commercial exchanges are reflected in the section on industrial cooperation as well.

A significant element added to the Basket II action on economic cooperation in the Madrid Concluding Document is the acknowledgment of problems created by the use of compensation transactions (countertrade) in East-West trade. Countertrade, not specifically mentioned in the Final Act, occurs when a buyer of goods insists on paying the seller with other products instead of hard currency.[2] While countertrade can take many forms, there are two basic types. Short-term, commercial compensation is a one-time deal when payment for goods purchased is made with some other, often-unrelated good. Long-term, industrial compensation is frequently a buy-back deal when plants, licenses or production lines and relevant technology are paid for with what they eventually produce.

Eastern demands for countertrade have grown because of the increasing difficulty of matching import needs with and hard-currency reserves. Although Western businesses have attempted to cope with these demands by creating special facilities and trading houses specifically to handle countertrade transactions, these transactions nevertheless increase the risk of participating in trade without offering the advantages of regular trading methods. They can also lead to profitability problems, particularly when the items received as payment are difficult to market. Specified quantities and prices for goods received as payment can disrupt markets and lead to charges of dumping. The enormous size of some countertrade deals eliminates the ability of small- and medium-sized firms to participate in trade, because they cannot afford the lengthy negotiations and lack the capability to market the products received as payment. Countertrade is, therefore, not considered a preferred way of doing business.

Another section of Basket II examines possibilities for increased cooperation in scientific and technological fields through meetings, exchanges, dissemination of information and commercial exchanges. Areas of pure and applied science such as energy, agriculture, climate and environment, new technologies, chemistry and physics, space research, health and medicine, oceanography and meteorology are cited as possible fields of cooperation. In the Madrid Concluding Document, the participating States also recognized the importance of direct, personal contacts among scientists and specialists.

Acknowledging the global significance of protecting the Earth's environment, Basket II calls on the signatories to increase cooperation in fields such as air and water pollution control, the protection of the marine environment, the conservation of nature, and the forecasting of environmental changes. The Madrid Document took positive note of the efforts which led to the adoption in November 1979 of the Convention on Long-Range Transboundary Air Pollution under the auspices of the United Nations Economic Commission for Europe, and called for further action to be taken in this field.

While much of Basket II is made up of provisions to be implemented either unilaterally or on a bilateral basis, some of them call for multilateral action to be taken at the United Nations Economic Commission for Europe (ECE), located in Geneva, Switzerland. The ECE discusses the implementation of Basket II provisions and implements some provisions itself, such as those on the environment.

Although the participating States committed themselves to pursue cooperation in the fields specified by Basket II, they recognized that such cooperation cannot take place in a vacuum. The Madrid Concluding Document notes that "the implementation of all the provisions of the Final Act and full respect for the principles guiding relations among them set out therein are an essential basis for the development of cooperation among them in the field of economics, of science and technology, and of the environment." Thus, while convinced that economic cooperation "contributes to the reinforcement of peace and security in Europe and in the world as a whole," they acknowledged that the development of trade and scientific ties is dependent upon other aspects of East-West relations, including respect for human rights and fundamental freedoms. The relationship between implementation of all areas of CSCE is a fundamental, underlying theme of the CSCE process.

Economic conditions

Economic conditions are important factors determining the extent to which Basket II provisions have been implemented. Regardless of the political will of the governments involved, economic cooperation cannot move to higher levels absent the necessary economic conditions. However, economic conditions are not the sole determinant of Basket II implementation, because political differences frequently can influence economic relations between states.

Perhaps the most important economic factor affecting Basket II implementation has been the debt problems of the Soviet Union and Eastern Europe, known as the European CMEA countries.[3] The Soviet Union and Eastern Europe were severely affected by deteriorating conditions in international economic and financial markets in the beginning of the 1980's—specifically by rising international interest rates, stagnating or falling commodity prices, slowing demand in the Western industrial countries, and a sudden halt in commercial bank lending to nations experiencing financial problems. These conditions have had a tremendous impact on East-West economic relations and cannot be ignored in a review of Basket II.[4]

The USSR was probably the least affected by the debt crisis and the 1981–83 world recession, due mostly to its large resource base, relatively manageable foreign debt, and favorable reputation on international credit markets. For the most part, the Soviets maintained a positive hard-currency trade as exports grew about 14% between 1980 and 1984 and imports grew by only 5%. The major, if not only, cause for this was the 25% increase in the value of Soviet energy exports (mostly crude oil and refined petroleum but also natural gas), as growth in major nonenergy exports stagnated. Imports, a third of which are agricultural products, remained fairly level. This made Soviet gross debt, ranging between $20 and $21 billion in 1981–84,[5] relatively easy to manage, especially since foreign exchange reserves (commercial assets in Western banks) continually equalled about 50% of the gross debt,[6] making the net debt about one-half the gross debt. Confidence in loaning to the USSR also was increased by the fact that a fairly large percentage of Soviet debt is backed by Western government guarantees.

Economic events in 1985 and 1986, however, required certain changes in Soviet economic relations with the West. Soviet hard-currency exports declined in value from 1984 to 1985 by more than 15% due primarily to a fall in the volume of oil deliveries, which accounted for 64% of hard-currency trade earnings in 1984. This fall was caused by both production and delivery problems early in the year.[7] The result was a 77% reduction in the trade balance. In fact, according to some calculations, the Soviets actually experienced a negative trade balance in 1985, and a positive net current account was only maintained by increasing gold sales from $1.3 billion in 1983 to $3.1 billion in 1985. And while the volume of oil sales may rebound somewhat as production has increased, dramatic declines in oil prices have exacerbated Soviet export difficulties. Over $28 per barrel in December 1985, crude oil dropped to under $10 per barrel in mid-1986, recovering to about $15 per barrel in October 1986.[8]

In response to these developments, the Soviet Union in May 1984 obtained their first loans from Western banks in 5 years, including a $400 million loan by a consortium led by the First National Bank of Chicago in November 1985 for purchases of grain from the United States and Canada. In 1985, Soviet gross debt grew to $25 billion, although lending to the Soviet Union is still considered low-risk.

Eastern Europe was more severely affected than the USSR by a severe debt and payments crisis in the early 1980's. During the 1970's, the East European countries ran continual hard-currency trade deficits and borrowed heavily to finance these deficits, utilizing Western commercial banks much more than the USSR. When these banks stopped further credit inflows around 1980, it became increasingly difficult to meet interest payments and repay maturing debt without access to new credits. Unlike the Soviet Union, these countries had limited foreign exchange reserves and a limited natural resource base for export, forcing them to generate hard-currency trade surpluses through a combination of increasing exports and decreasing imports. The world recession which paralleled the debt crisis made this difficult; while Eastern limits on domestic investment and consumption increased the amount of goods available for export, there simply was little or no world demand for these goods. Only the GDR, having higher quality goods and taking increased advantage of its special access to the FRG market, was able to increase hard-currency export levels from 1980–85. Bulgarian, Hungarian and Romanian export levels remained fairly even over this period, while Czechoslovak hard-currency exports fell by about 9%. Poland's hard-currency exports plummeted by 33% from 1980 to 1981 and then partially recovered, particularly in 1985, for an overall decrease in exports from 1980–85 of 18%.

The inability to increase or even maintain levels of exports placed additional pressure on the countries of Eastern Europe to cut imports in order to create a trade surplus. As a whole, they slashed imports by about 28% from 1980 to 1984 by reducing investment and consumption levels or growth rates to limit import needs. While this has helped reducing trade deficits, it has also had an impact on the quality of life reducing the amount of goods available for public consumption. Bulgaria and Czechoslovakia had relatively small debt levels and were able to make this adjustment early. Bulgaria restrained imports to create a trade surplus in the late-1970's and was therefore able to increase imports by over 50% from 1980–85, while Czechoslovakia slashed imports by over 25% during the same period. Despite their early adjustment, both continue to be financially conservative. Hungary and the GDR had greater debt problems but were able to avoid rescheduling payments as they came due since both were still able to obtain some medium and long-term credits. The GDR's ability to increase the level of hard-currency exports and its special relationship with the FRG also helped the situation. Hungary was able to obtain two short-term bridging loans from the Bank for International Settlements (BIS) and, after 1982, IMF and World Bank loans and commercial bank credits linked with World Bank-sponsored projects. Despite these advantages, however, both countries cut imports and introduced austerity measures in the domestic economy.

Poland and Romania both had very large debts and experienced severe debt crises. Romania, which maintained the lowest level of foreign exchange reserves among the East European countries, was forced to cut hard-currency imports by over 41% from 1980 to 1984. In 1982 alone, imports were cut by almost one-third from that in 1981. Poland, which was unable to turn large increases in hard-currency imports into large increases in hard-currency exports, had the most difficult time and accumulated by far the largest debt. Unable to secure new loans or credits, Poland cut its imports by well over 55% from 1980 to 1982 and, until 1985, has increased them only slightly. Despite this sizable decrease, Poland was not only unable to increase hard-currency exports but, in fact, experienced a 26% decrease in these exports, making it impossible to generate a hard-currency surplus. Both countries were forced to reschedule their debt payments with commercial banks as well as with governments supplying official credits.

The dramatic drop in Eastern imports resulted in an almost $3 billion hard-currency trade deficit being turned into a more than $7 billion hard-currency trade surplus in 1984. In 1985, as these countries began to increase imports again, the surplus narrowed to $4.8 billion. However, while all except Poland and Romania have, for the most part, put the debt crisis behind them, they still face uncertain futures. Eastern Europe needs to increase exports, which will prove difficult as investment levels for domestic industry, lowered in response to the debt crisis, have not improved the quality or competitiveness of East European industrial goods. In addition, slow-growing Western economies, some of which give restricted access, may not have the demand necessary for substantial increases in imports from Eastern Europe. The debt burdens of the developing and the newly-industrialized countries prevent increases in East European exports to these countries as well.

Another relevant factor has been the recent effort to increase the level of intra-CMEA trade relative to trade with the West and, more specifically, the Soviet desire to balance its trade with the East European countries. The East European countries, with the exception of Romania, have run deficits with the USSR by importing large amounts of energy. The Soviet Union wants these countries to reduce their deficits—and, possibly, to become less dependent on the West—by exporting more and higher-quality products to the USSR as well as to increase cooperation in the development of Soviet resources and in scientific and technological research and development. It appears that this Soviet pressure on the East European economies is beginning to have some effect. If successful, it may divert East European products otherwise sold to the West for hard-currency.

Overview of implementation

The effects of European CMEA economic problems are visible in Basket II implementation. Despite some developments, implementation of the Basket II provisions has not changed significantly. However, performance varies greatly among the countries of the European CMEA, and there is reason to believe that further positive developments may be in the making.

In terms of business contacts and facilities, compliance generally has not improved. Decisions to decrease imports have made officials from Foreign Trade Organizations (FTO)[9]—governmental bodies responsible for foreign trade activity in a European CMEA country—less interested in developing contacts with potential Western sellers and are partly responsible for open discrimination against new-to-market and, in some cases, US companies. There has been some improvement in contacts in Hungary, however, as efforts at reforming the national foreign trade system has led to a decentralization of foreign trade rights. While some countries have improved the availability and quality of office space, firms have often been forced to relocate and often must pay tremendous rents and service fees in hard currency.

Poor economic performance has led to a deterioration in the quality and quantity of economic and commercial information. Information on problem sectors of an economy is often suppressed or adjusted to give a more positive picture. For Hungary, Poland and Romania, however, membership in the IMF and the World Bank or the process of rescheduling debt has led to some improvements in providing information.

The need to limit imports and to expand exports has led to increases in the frequency and severity of countertrade demands, which in turn have led to more complicated, hence longer, contract negotiations. Countertrade demands also have limited the involvement of many Western firms, particularly small and medium-sized ones, in East-West trade. On the other hand, joint ventures, while still limited in scope or legally impossible, are being viewed more positively by Eastern countries as a way to improve the domestic economy without spending hard currency.

Despite the gradual removal of sanctions on Poland and the Soviet Union as well as several other improvements in bilateral trade relationships between the United States and the European CMEA countries in recent years, US trade with these countries as a whole has not increased significantly. Total US trade turnover with CMEA countries went from less than $4.8 billion in 1982 to $6.5 billion in 1984, an increase of about 37%, before falling by almost 20% to $5.3 billion in 1985. These values continue to remain $2 billion less than the peak year for US trade with these countries, 1979, when total trade turnover reached $7.5 billion.

As a proportion of overall US commerce, trade with the European CMEA countries have always been relatively insignificant—and it has become even more so in recent years. For the years 1982–85, this trade averaged 1% of total US trade with the world, with the share of US exports to and US imports from the European CMEA countries amounting to 1.6% and 0.6% respectively. This is down from the previous period, 1978–81, when US total trade with, exports to and imports from these countries amounted to 1.5%, 2.3% and 0.7% respectively. At the same time, the US trade surplus with the Soviet Union, averaging over $2 billion annually in recent years, is significant in an era of growing US trade deficits. In 1985, this surplus, which was just under $2 billion, was the fourth largest among US trading partners.

While the absence of any significant increase in US trade with the European CMEA countries can be attributed to the economic difficulties these countries have been experiencing and their governments' reactions to them, the continued lack of progress in other areas of bilateral relationships with the USSR and some of the East European countries will limit trade possibilities regardless of economic conditions. In addition, the Soviet Union and East European nations have failed to implement adequately the provisions of Basket II, since the Final Act was signed in 1975, even during periods when economic conditions were better. Continued Eastern noncompliance with Basket II provisions will hinder economic cooperation between East and West, contrary to the aims of the CSCE.

CHAPTER TWO

ECONOMIC COOPERATION

Soviet Union

Business Contacts and Facilities.—There has been little improvement in Soviet compliance with the Basket II provisions on business contacts and facilities. Western business offices are located in Moscow's International Trade Center, which opened in October 1980 and is run by the Soviet FTO, Sovincenter. In late 1984 and early 1985, there was an increasing number of complaints about miscellaneous Sovincenter fees, restrictions on imports for Soviet staff, and the provision of basic support services. When Sovincenter rents for nonaccredited offices were increased from 150–300% on June 1, 1985, nonaccredited firms, with no other office options, had no choice but to pay the higher prices, which proved especially difficult for smaller firms. Most nonaccredited firms continued to have problems in meeting their requirements for office equipment, vehicles and clerical reports. A waiting list of up to 2 years exists for firms wishing to move offices from one location to another.

In late 1982, there were 27 accredited US firms with offices in Moscow and one, US-USSR Marine Resources, with an office in Nakhodka, a Soviet city located on the Sea of Japan.[10] By 1986, the number of accredited firms in Moscow increased only by 1, to 28, as three companies either did not seek to maintain or were denied accreditation and four companies received accreditation, including the reestablishment of a Pan American World Airways office and a Moscow office for US-USSR Marine Resources, Inc.

In late 1984, the Soviets revoked the accreditation of one US firm, California International Trade Corp., suggesting that the office was a front for US intelligence operations and sold items of poor quality at high prices. The president of the firm, who had conducted business with the Soviets for 14 years, asserted that the Soviet accusations were prompted by the arrest of former FBI agent William Miller on charges of spying for the Soviet Union. He filed a lawsuit in the US District Court in Lost Angeles in January 1985, charging the Soviet newspaper *Izvestiya* with libel and the Soviet Foreign Trade Ministry with unfairly removing accreditation. The Soviets never defended or acknowledged the lawsuit, and they were ordered by the court in July 1986 to pay $250,000 in damages as well as $163,000 plus interest on medical equipment for which payment has not been made.

In mid-1982, direct-dial telephone service between the Soviet Union and the countries of Western Europe, North America and Japan was cut-off, making it difficult for foreign firms operating in Moscow to maintain contacts outside the USSR. In 1983, improved operator-assisted telephone service reduced somewhat this inconvenience, and, in mid-1984, direct-dial service was restored to roughly half of the FRG firms with accredited offices in Moscow. In early 1985, the Soviet Ministry of Communications had promised direct-dialing service to others, but it was not until 1986, 1 year later, that US firms regained such service. Many continue to experience significant delays of up to 8 hours on incoming calls.

Hotel accommodations are available, but representatives of unaccredited companies must live in expensive hotel rooms and are given no guarantee that they may stay in the same room, or even in the same hotel, for the duration of their stay in Moscow. Although resident business representatives have not had many complaints about housing facilities, the lack of adequate fire safety provisions continues to be a concern. Since 1981, business representatives and their families have not been permitted to make purchases in diplomatic food stores.

Problems with travel and visa restrictions continue. Business persons living permanently in Moscow may apply for a multiple-entry visa, but there is strict control over the number of such visas. There have been delays in renewing some visas. The representative of the Nakhodka-based US-USSR Marine Resources must use the Khabarovsk Airport—about 8 hours away by train—instead of the much closer one in the closed city of Vladivostok. Those business representatives traveling by automobile for equipment installation inspections are still barred from using certain roads, which greatly increases their travel time.

US business representatives have generally been able to obtain appointments with Soviet trade officials and have had few complaints about interference in their activities. At the same time, access to end-users has never been good in many industries and has not improved in recent years. Western firms cannot sell directly to the real buyer or end-user but must approach and conclude transactions with FTOs. Moreover, the Soviet Government requires Western businesses to report their dealings and keeps track of those who attend trade fairs symposia, et cetera, which inhibits Soviet citizens from making contacts.

Though US firms had been experiencing curtailed access to the Soviet market for a number of years, this has become less of a problem as US companies are receiving more bid inquiries and are being asked to come up with new proposals—partly as a result of the May 1985 high-level, inter-governmental trade talks, where Commerce Secretary Baldrige improved US access to the Soviet market a main priority. Soviet orders of machinery and equipment from US firms has risen from $70 million in 1984 to $240 million in 1985.

On September 24, 1986, the Soviet Government announced measures that could have a significant impact on contacts between representatives of Western firms on the one hand, and Soviet trade officials and potential purchasers on the other. One measure gives 21 Soviet ministries and 68 industrial associations and enterprises foreign trade rights, including the right to conduct export and import operations in Western markets.[11] A larger number of ministries, associations and enterprises may obtain such rights in the future. In addition, a Foreign Economic Relations Commission of the USSR Council of Ministers was created to supervise the work of the Ministry of Foreign Trade and other organizations and ministries engaged in foreign trade activity. As these changes have only come into effect in January 1987, their ability to overcome past problems created by the centralization of foreign trade rights in the Ministry of Foreign Trade is not yet known. At the same time, it is believed that the percentage of trade done by these ministries, associations and enterprises with newly-acquired foreign trade rights will be miniscule.[12]

The primary bilateral organization made up of private sector business representatives is the US-USSR Trade and Economic Council, established in 1973 and consisting of about 220 American companies and 125 Soviet organizations. In addition to holding annual meetings, the Council has offices in New York and in Moscow to assist its members. The US-USSR Trade and Economic Council held its first annual meeting in 4 years in November 1982; it has been relatively inactive up to that time because of tensions created by the Soviet invasion of Afghanistan. Some 250 executives representing about 125 US companies travelled to Moscow for the meeting. In mid-October 1983, the Council sponsored the Agri-Business USA trade show in Moscow, which attracted approximately 100 US firms and focused on agro-chemicals, farm equipment and food processing. The show caused considerable controversy, because it took place less than 2 months after the Soviet downing of the Korean airliner 007 on August 31, 1983.

The May 1984 meeting of the Council in New York represented another important development in bilateral trade relations as both Presidents Reagan and Chernenko sent messages to the meeting, which was attended by high-level Soviet officials. The December 1985 meeting in Moscow was even more significant. Arriving in the "Clipper Business Summit," the first Pan American World Airways flight to the USSR in 6 years, a record 350–400 US business representatives attended and met with many high-level Soviet officials, including the Chairman of the Council of Ministers Nikolai Ryzhkov, General Secretary Gorbachev, Foreign Trade Minister Boris Aristov and Vsevolod Murakhovsky, the chairman of the newly created Agro-Industrial Committee. US Commerce Secretary Baldrige attended as well. The 1986 meeting was held in New York.

Economic and Commercial Information.—The quantity and quality of publicly available Soviet economic and commercial information has not improved and, in many cases, remains severely restricted and incomplete. In fact, previously available data have disappeared from regularly published statistical series in the last few years. That which is published is plagued by overemphasis on aggregate statistics, omission of detail, and imprecise definitions. Foreign trade and economic handbooks are available only in limited quantities. Frequently, vague or general official announcements are the only source of information on major economic developments.

Initial Soviet statistics for 1983 omitted some items previously reported, including several crop categories in agriculture. In late 1984, several categories were omitted from monthly production statistics, and further omissions occurred in 1985, reflecting an effort to obscure the poor performance of the Soviet economy. In September 1985, the monthly production statistic report cut by one-half, with the elimination of performance data for individual ministries and republics, although subsequent monthly reports resumed the customary format.

In January 1984, the USSR promulgated a new law, Article 13–1, entitled "The Transmission of Information Constituting an Official Secret to Foreign Organizations." The law states that "the transmission or collection with the aim of transmission to foreign organizations or their respresentatives of economic, scientific-technical or other information constituting an official secret by a person to whom this information was entrusted . . . is punishable by deprivation of freedom for a period of up to three years or by correctional work for a period of up to two years." This broad law acts to constrict the already minimal contacts between Soviet citizens and foreign business persons and diplomats who seek economic or commercial information.

Press conference by Soviet economic officials became more frequent during the 27th Party Congress of the CPSU but failed to broaden appreciably information available in Soviet journals and newspapers. One positive development, however, was the 1986 publication of agricultural production figures for the period since 1979.

Industrial Cooperation.—Soviet policy towards cooperation arrangements has not changed—Soviet officials encourage such cooperation whenever the opportunity arises. The Soviet Union has always been a strong promoter of industrial cooperation within CSCE as a way to advance technological interchange with the West. Unlike the East European members of the CMEA, who emphasize co-production or specialization deals with Western firms, the Soviet Union stresses broad agreements for the exchange of scientific and industrial expertise.

According to the ECE, 28.8% of known East-West cooperation contracts in force in the early 1980's were concluded with the Soviet Union. However, the number and variety of cooperation arrangements are limited by Soviet inflexibility. The most important constraint is the unwillingness of the Soviet Union to grant effective rights of quality control to prospective Western partners.

The Soviet Government has become increasingly active in joint ventures located in Western and developing countries, and it promotes joint ventures in other European CMEA states as outlined in long-term CMEA programs. Thus far, however, it has not permitted them on its territory, primarily because they would violate the ideological principle that the means of production are owned by the state and not by individuals or private firms. At the same time, two factors have combined to make joint ventures on Soviet territory more appealing to the Soviet leadership: the drastic drop in oil export earnings and the campaign to increase greatly the role of technological developments to spur economic growth in the new (12th) 5-year plan.

Under Gorbachev, the Soviet leadership has adopted measures designed to reduce the large share raw materials now have in Soviet exports by increasing significantly the amount of manufactured goods exported by 1990. During 1986, there were several hints that joint ventures would be permitted as a vehicle to push Soviet exports. In mid-June 1986, Chairman of the Council of Ministers Nikolai Ryzhkov spoke before the Supreme Soviet, stating the Soviet Union's readiness to pursue "new advanced forms" of trade relations with the West.

On January 13, 1987, the Soviet Council of Ministers passed a resolution for the setting up of joint ventures on Soviet territory. Although permitting such ventures in the USSR is viewed as a considerable departure from traditional Soviet hesitance, the parameters of which joint ventures will be permitted does not go beyond what already exists in many East European countries. For example, foreign ownership cannot exceed 49%, and the chairman of the board, the general director and most of the personnel must be Soviet citizens. The tax on income after deductions is 30%, with a 20% tax on income repatriated by the foreign firm to a country which does not have a tax treaty with the USSR. These and other limitations may make the establishment of joint ventures in the Soviet Union less attractive than in other countries.

At the same time, the Soviets have put into place certain benefits designed to attract potential Western partners. For example, joint ventures will be exempt from paying taxes in the first 2 years of their operation. The Soviets claim to guarantee the investment and property rights of the foreign partner against expropriation and nationalization. Joint ventures will be exempt from having production or export targets imposed on them by central planners, although they likely will be affected by inputs from the planned Soviet economy. The product of the joint venture can be sold in the Soviet Union or abroad (either in the home country of the foreign partner or in a third country). At least some of the products will be exported, as the venture must generate its own hard currency to pay for needed imports. Labor costs could be an advantage as well, depending on the extent to which the joint venture will itself be responsible for housing, medical care and other worker benefits traditionally subsidized by the Soviet government.[13]

Countertrade.—Because of certain characteristics of the Soviet economy which are unique, the Soviet Union differs from the other European CMEA countries in its countertrade practices. Because it has a large economy which stresses planned economic activity, a manageable foreign debt, and an abundance of undeveloped natural resources, the Soviet Union has stressed long-term industrial compensation agreements of the buy-back variety. Information on short-term commercial compensation is minimal other than generalities or reporting of specific deals. The major Soviet industries involved in buy-back arrangements are natural gas, chemicals, coal and timber.

In the late 1970's, Western firms looked more positively on buy-back deals, primarily because Western Europe desired increased access to Soviet resources. Another factor, perhaps, was the lack of long-term experience with more than just a few countertrade deals. By the 1980's, Western firms saw that the resultant product received as payment, which is imported according to contract instead of demand, often competed with their own product in domestic markets and even flooded some Western markets, particularly in the chemical industry, leading to charges of dumping. In addition, prices fixed in contracts have, in later years, differed significantly from market prices.

Current Soviet countertrade practices seem to be less demanding in linking specific sales contracts with purchase contracts. The Soviets continue to insist that companies they buy from engage in purchasing activity in the Soviet Union and look for evidence of general purchasing activity by Western firms. While this represents a form of discrimination against certain firms, it does give Western firms increased flexibility in meeting countertrade demands. Recent difficulties in generating hard currency may result in stricter and more frequent countertrade demands.

Inter-governmental Cooperation.—US-Soviet trade relations fluctuated greatly over the past few years, but there has been a gradual improvement since their low point in 1982. These relations have never been normalized by a trade agreement, although there was an attempt to do so in the early 1970's. Most-Favored-Nation trade status can only be granted to the Soviet Union, as to any of the European CMEA countries except Poland, in accordance with the Jackson-Vanik "freedom of emigration" amendment to the 1974 Trade Act.[14] In addition to the Jackson-Vanik requirements regarding official credits, the 1974 Export-Import Bank Act contains the Stevenson Amendment, which, among other things, sets a $300 million ceiling on total Export-Import Bank loans to the Soviet Union unless the President sets a higher limit upon determining, with concurrent congressional approval, that such an increase is in the national interest. The Soviet Union is also subject to export controls as detailed in the new Export administration Amendments Act brought into force in July 1985.[15]

During the early 1980's, bilateral trade relations were declining rapidly from their most prosperous years of 1978 and 1979. While the grain embargo and the ban on exports of phosphate rock and phosphate-based materials to the USSR, imposed by President Carter in early 1980 in reaction to the Soviet invasion of Afghanistan, were lifted on April 24, 1981, official trade contacts were minimal (only those to discuss bilateral grain trade took place) and no US trade promotion activities were taking place in the USSR. In addition, the Reagan administration was committed to a review of overall US policy toward the European CMEA countries and the USSR in particular. At the July 1981 Ottawa Economic Summit, the United States sought a high-level meeting of the Coordinating Committee for Multilateral Export Controls (COCOM),[16] to discuss how to improve the multilateral controls of technology transfer to the Soviet Union and its allies. The meeting was held in January 1982 and led to a gradual strengthening of COCOM controls in terms of both national licensing procedures and enforcement.

The lowest point in trade relations between the two countries came in 1982. Still in effect were the sanctions imposed on the Soviet Union on December 29, 1981, in reaction to the declaration of martial law in Poland. On June 22, 1982, the US Government extended export controls on oil and gas equipment to include exports of foreign origin goods and technical data by US-owned or controlled companies abroad, regardless of origin, and foreign-produced products of US technical data not previously subject to export controls. Validated licensing of controlled products, including oil and gas equipment and technology destined for the Soviet Union, was thereafter permitted on a case-by-case basis.

While the United States continued the post-Afghanistan policy of not conducting trade promotion activities in the USSR or engaging in high-level, inter-governmental trade talks, steps were taken which signalled that US-Soviet trade relations might be thawing. A second 1-year extension of the 1975 grain agreement was made in mid-August 1982. During the regular semiannual consultations, the Soviets were informed that, in addition to the 8 million metric tons (mmt) provided for in the agreement, the United States would make available an additional 15 mmt of grain for the agreement year beginning on October 1, 1982. On November 13, 1982, President Reagan removed the export controls that had been imposed in December 1981 and June 1982, after an agreement was reached by the NATO governments for a comprehensive review of East-West economic relations.

The United States and the Soviet Union concluded a new 5-year grain agreement on July 28, 1983. According to the agreement, the Soviets are required to buy a minimum of 9 mmt of US grain per agreement year and may import up to 12 mmt without having to consult with the US Government. These amounts represent a minimum 50% increase in required and permitted Soviet purchases of grain for each year as compared to the 1975 agreement. The Soviets agreed to try to space out their purchases over the 12 months of each agreement year.

During the second year of the agreement (October 1, 1984–September 30, 1985), however, the Soviets imported only 2.9 mmt of US wheat, thus violating the agreement. Despite US efforts, including direct negotiations, the Soviets would not promise to act upon the terms of the agreement. The Soviets claimed that the price of US wheat was too high and of questionable quality. Under the third agreement year (October 1, 1985–September 30, 1986), the Soviets made an even more significant violation of their wheat commitment, despite the US action to include the Soviet Union in the US Export Enhancement Program, which would permit the sale of US grain to the Soviet Union at subsidized rates. This violation can be attributed to a combination of lower Soviet import needs and increased competition in world grain markets.

Trade relations became vulnerable to increased tensions after the Soviet downing of KAL 007 on August 31, 1983. The US office of Aeroflot was closed and the United States sought temporary international curtailment of landing rights against Aeroflot. A few months later, on November 21, 1983, the United States announced a ban, effective December 22, on imports of nickel from the Soviet Union. The action was taken under the Trading With the Enemy Act, because there was reason to believe that some Soviet nickel products contained Cuban nickel. The United States has had a virtual embargo on imports from Cuba since 1963. At the same time, some US officials stated that this action should be seen in the broader context of the strained bilateral relations following the downing of KAL 007. The ban was lifted in late 1986.

Positive developments in US-Soviet trade relations resumed in 1984. In April, the United States and the Soviet Union agreed to renew the Governing International Fisheries Agreement, the legal basis for Soviet fishing within the US 200-mile zone.[17] Following the renewal, the US Government announced on July 25 that the

USSR would be allocated 50,000 metric tons of bottom fish, the final step necessary for the resumption of Soviet fishing in US waters. According to the State Department, this action was taken by the Reagan administration both to help the US fishing industry and to facilitate nonstrategic trade exchange. However, on April 1, 1985, the Commerce Department announced that the Soviet allocation was cut in half, in accordance with US law, because the Soviet Union was in violation of an international whaling agreement.

Another action taken in 1984 to facilitate nonstrategic trade between the United States and the Soviet Union was the renewal in June for another 10-year period of the long-term US-USSR Agreement to Facilitate Economic, Industrial and Technical Cooperation. This agreement, signed by President Nixon and General Secretary Brezhnev in 1974, commits both Governments to facilitate commercial cooperation generally. Because the agreement sets broad guidelines for governmental involvement and does not require specific commitments (such as granting MFN trade status), congressional approval of the extension was not needed. In announcing the extension, the Commerce Department also announced the scheduling of a working group meeting called for by the agreement to exchange economic information and help determine trade prospects. The meeting took place in Moscow on January 8–10, 1985. This marked an end to the US policy of not pursuing high-level trade talks with the Soviet Union. The Soviet delegation was headed by Deputy Foreign Trade Minister Vladimir Sushkov and the US delegation by Under Secretary of Commerce Lionel Olmer.

Shortly after the January 1985 talks, it was announced that Commerce Secretary Malcolm Baldrige would travel to Moscow on May 20–21, 1985, as head of the US delegation to the inter-governmental, US-Soviet Joint Commercial Commission (JCC), which was represented on the Soviet side by Foreign Trade Minister Nikolai Patolichev.[18] This was the first session of the JCC since December 1978.[19] The US delegation focusing on nonagricultural trade, presented an analysis of more than 30 projects proposed by the Soviet Foreign Trade Ministry and suggested an additional 20 projects that were possible under US export control laws.

Several commitments came out of the JCC meeting. Secretary Baldrige announced that the administration would move to eliminate a ban in effect since 1951 on the US importation of seven types of Soviet fur skins—ermine, fox, kolinsky (Asian mink), marten, mink, muskrat, and weasel. Patolichev stated his intention to inform all Soviet FTOs of the Soviet Government's desire to have them provide bid inquiries to US firms and further to instruct them to consider these bids solely on their economic merits.[20] The Commerce Department reported this to the American business community and agreed to resume trade missions to the USSR as well as sales seminars and other export promotion events. The first Marketing Sales Seminar was on medical equipment and took place in mid-June 1986 with 11 US companies participating. Both sides also agreed during the JCC meeting to resume regular business facilitation meetings not held since 1979 to identify commercial cooperation opportunities.

At the November 1985 summit meeting in Geneva, President Reagan and General Secretary Gorbachev agreed "to develop trade and economic ties." shortly thereafter, Commerce Secretary Baldrige returned to Moscow to attend the ninth meeting of the US-USSR Trade and Economic Council. Both Baldrige and Gorbachev spoke to the Council, which was attended by over 400 American business representatives.

Also during 1985, the United States and the Soviet Union reached an accord for resuming direct air service between Moscow and Washington DC. The agreement, initialed on November 22, was put into effect on February 13, 1986, following the implementation of safety measures on North Pacific air routes, on which American, Japanese and Soviet negotiators reached agreement on November 19, 1985. The new accord, which amends the bilateral Civil Air Agreement that has been in effect since 1967 despite the lack of direct air service, provides for up to four round-trip flights per week by Pan Am and Aeroflot to Moscow and Washington with an intermediate stop.[21]

There have been further developments in US foreign policy export controls on trade with the Soviet Union. In January 1986 the Commerce Department adjusted its licensing policy for foreign policy controls on the export of technical data relating to oil and gas exploration and production. Applications for the export of technical data for oil and gas exploration or production were to be reviewed on a case-by-case basis and not on a "presumption of denial" as before. Applications for the export of exploration and production equipment were to be reviewed on a case-by-case basis and generally will be approved, unless subject to multilateral COCOM controls. On January 15, 1987, the US Department of Commerce ended export controls on nonstrategic oil and gas equipment and technology to the Soviet Union on ground that they have lost their impact in the face of widespread foreign availability of like products.

Bilateral Trade.—Rising throughout the 1970's and peaking at about $4.5 billion in 1979, US-Soviet trade plummeted by over 55% to just under $2 billion in 1980, due primarily to the U.S. grain embargo and other sanctions taken by the United States in response to the Soviet invasion of Afghanistan. In the years that followed, trade levels recovered to what were, at best, modest levels—$2.7 billion in 1981, $2.8 billion in 1982 and $2.4 billion in 1983—before jumping by over 62% to $3.9 billion in 1984, a result of large Soviet purchases of US grain in the first full year of the 1983 grain agreement. In 1985, total trade turnover fell back to $2.9 billion, much closer to the 1981–83 levels. Thus, while total trade between the United States and the Soviet Union in 1985 represented a 43% increase from the 1980 level, it represented a less than 1% increase from the 1982 level.

On average, 85% or more of US-Soviet trade consists of US exports to the USSR. Dropping from $3.6 billion in 1979 to $1.5 billion in 1980, a 58% decrease, exports have generally paralleled the increase in total trade, ranging between $2 and $2.6 billion in 1982–85 (with the exception of 1984, when exports reached almost $3.3 billion). Agricultural products make up between 65–80% of these exports. US corn and wheat are the primary products. Other exports include phosphoric acid, soybeans, cotton, almonds and pressure-sensitive tape.

US imports from the USSR make up the remainder of the bilateral trade, approximately 15%. As with exports, the record year for imports was 1979, when the United States imported almost $900 million worth of goods from the Soviet Union. In 1980 it fell to $484 million, almost one-half the 1979 level. It fell by almost another 50% by 1982 to $247 million, only to increase by 143% to $600 million in 1984. It fell again, however, this time not so dramatically, to $443 million in 1985. Principal US imports from the Soviet Union in recent years include anhydrous ammonia, urea, palladium, light fuel oils, crabs, vodka and—until it was prohibited from entry into the country in 1984—nickel.

The result of these export and import patterns is a continuing trade surplus for the United States with the Soviet Union, ranging from approximately $2.7 billion in the years with highest levels of trade, 1979 and 1984, to just over $1 billion in 1980. From 1982-85, the US trade surplus has averaged over $2.1 billion. In 1982, US exports to the USSR have exceeded US imports from that country by a ratio of over 10 to 1; in the years since, for export/import ratio have consistently been slightly more than 5 to 1.

Bulgaria

Business Contacts and Facilities.—Bulgaria has the fewest number of Western company offices of any of the European CMEA countries. There is only one US firm with an accredited office. Western firms seeking to open representation offices face considerable bureaucratic problems and continue to use the state-controlled Interpred organization—an association of all agencies which perform a wide range of representative services (such as facilitating contacts, analyzing plan requirements, assisting in the location of goods for countertrade, et cetera.)—to maintain effective contact with Bulgarian purchasers. All foreign businesses are required to locate at the International Trade Center, which officially opened on March 17, 1986. Western business representatives who had spent considerable funds renovating offices in Bulgaria resented being officially "requested" to move. They were given no option as existing leases were broken arbitrarily. Business representatives complained about exorbitant rents, reaching as high as $18-$22 per square meter of office space. An April 1983 decree containing provisions on hiring employees, contracting services, and reporting requirements imposed new burdens on Western companies. After business representatives resisted and complained, the Bulgarians made some concessions in early March 1986 on leasing terms and services rendered. Nevertheless, representatives of Western chemical industries have considered closing their Bulgarian offices, and a few have already done so.

Short-term hotel accommodations for visiting business representatives are adequate, although rates are often high and must be paid in hard currency. Adequate housing for longer stays is in short supply and difficult to obtain. Most business representatives face electricity and water rationing.

Although business representatives are required to obtain a telexed invitation from the Bulgarian concern they will visit in order to get a visa, this is usually forthcoming and the Bulgarian Embassy visa offices are cooperative. In fact, citizens from some Western countries do not need a business or a tourist visa to enter Bulgaria. There are no known travel restrictions on Western business representatives. Some Western business representatives, however, have complained about increased delays in obtaining visas, as the Bulgarian Embassies in their countries state that all decisions on visa applications must be referred to Sofia.

Effective May 1, 1983, the Bulgarians stopped issuing visas to tourists at border crossing points, including airports. Some American business representatives reported delays or complications resulting from the change, which now require all but group travellers or those with prepaid vouchers to obtain visas prior to arrival at the Bulgarian border. Apparently, the Bulgarian Embassy in Washington continued to report that visas could be obtained at the border, causing some confusion to those who acted on that information.

Whereas some American companies involved in major business negotiations with Bulgarian organizations report adequate access to economic officials and decision-makers, in late 1982 and early 1983 there was an increase in complaints about last-minute Bulgarian decisions to switch to other Western suppliers, postpone development of major projects, or futher delay major negotiations. New-to-market US companies reported long delays in receiving a Bulgarian response to business proposals, even those involving imports from Bulgaria. While it is difficult to tell how much of this was attributable to delays in the Bulgarian bureaucracy, some firms perceived such treatment as a deliberate attempt to discriminate against US companies.

In early 1984, Western business representatives reported better contacts with end-users as the middleman role of foreign trade organizations was diminished. This was especially true for those selling advanced technologies, who were given a great deal of freedom and access to high level officials. In 1986, with increasing economic difficulties and a hard-currency shortage, business representative with a long-established record of trade with Bulgaria were given even greater access to end-user enterprises. Others, however, continued to have difficulties even in obtaining information and statistics necessary to make business decisions.

On September 24, 1974, the US Chamber of Commerce and the Bulgarian Chamber of Commerce and Industry established the Bulgarian-US Economic Council as a channel for private contacts. In December 1982, the US Chamber decided to disband the Council because of budgetary considerations and apparent disinterest in the Council's activities. Although the Bulgarians have interpreted this action as being politically motivated, US companies have complained that the Bulgarian side never used the Council effectively to increase meaningful commercial exchange.

In an effort to improve relations with the US business community following the disbanding of the Council, the Bulgarian Chamber of Commerce and Industry and the Ministry of Foreign Trade hosted the Businessmen's Roundtable in Sofia in May 1984. Bulgarian trade officials actively promoted the Roundtable during the May 1984 Plovdiv Fair between prospective US and Bulgarian business partners. American business representatives were invited to discuss commercial contacts with Bulgarian Government officials and led to specific business negotiations. The Bulgarians also have tried to give increased attention to the forum on East-West trade relations held in Varna on the Black Sea coast. The first Varna Forum was held in 1982 and the second in late September 1985. Both were attended by Western business representatives active in East-West trade, as well as FTO and trade officials from the European CMEA countries.

Economic and Commercial Information.—Bulgaria continues to have one of the worst records in Eastern Europe in the area of economic and commercial information. As the domestic economic situation has worsened, official reports here have become increasingly unreliable as commercial tools. Officials are reluctant to share their opinions and are prone to hide negative information, especially from Western businessmen with whom they want to establish a joint venture project. Virtually no information is released on Bulgaria's external financial situation, and published trade data reports only the value of trade, calculated in valuta leva, omitting the volume. Much of the published data on the economic progress of the country is considered erroneous and misleading. Information is withheld under an official secrets act. Only tourism statistics have become more widely available.

Industrial Cooperation.—The Bulgarians appear to take a positive attitude to industrial cooperation with Western countries, including joint ventures. According to the ECE, however, only 4.2% of the known East-West cooperation contracts in force in the early 1980's were concluded with Bulgaria. Bulgarian preference seems to be on large-scale, long-term cooperation projects. Several contracts with American companies were reached in 1983 and 1984, however, including joint ventures. In mid-1985, Sheraton Corporation signed a cooperation contract to manage a local hotel. Bulgaria is active, however, in setting up joint enterprises and marketing organizations outside of Bulgaria, including in the West.

Joint ventures have been permitted in Bulgaria since the issuance of a decree on the matter in March 1980. In contrast to most of the European CMEA joint venture laws, Bulgaria permits the Western firm to have majority interest in the project. However, the decree lacks guarantees for protection of foreign investments, which has caused hesitation among many prospective partners.

In addition, Mineralbank, set up originally to assist in the exploitation of Bulgarian natural resources, was reorganized in 1982 as a "bank for economic initiatives." Its operations include obtaining foreign capital and credit to finance the construction of small and medium-sized enterprises. Such enterprises seem to be of greater interest to Bulgarian officials in recent years, although very little information is known about them.[19]

Countertrade.—Bulgaria engages in both short-term commercial compensation and long-term industrial compensation trade. Relative to some of the other European CMEA countries, Bulgarian countertrade practices generally seem to be more mild, primarily because Bulgaria did not experience the same debt and hard-currency difficulties of those countries with greater percentages of trade with the West. In addition, the New Economic Mechanism, begun in 1982, gave some added flexibility to the Bulgarian foreign trade system.

In 1985 and 1986, however, countertrade demands seemed to rise. While it seemed at first that this was caused by the harsh 1984–85 winter, which forced the expenditure of hard currency on energy, it later became apparent that it was also a reflection of the poor performance of Bulgarian agricultural products in traditional markets. Western companies have been pressured into accepting countertrade arrangements as a condition for signing sales contracts. Many of the goods offered as payment are of poor quality and are difficult to market. For nonessential or consumer goods, the Bulgarians are known to make very strict demands for countertrade. The demands for other imports vary according to importance. For electronic and other high-tech items, for example, countertrade demands generally are not made.

Inter-governmental Cooperation.—US-Bulgarian trade relations, always modest, have not improved in recent years and may have, in fact, become less stable as a result of tensions in other aspects of the bilateral relationship. Bulgaria traditionally conducts a higher percentage of its trade—between two-thirds and three-fourths—with its CMEA partners and has always been relatively more restrained in seeking Western loans and credits. Recent Soviet pressure on Bulgaria to increase exports to the USSR, through the establishment of joint enterprises, likely will have a negative effect on all traditional Bulgarian hard-currency markets.

To the extent that Bulgaria does trade with the West, it has become apparent in recent years that the United States is not a preferred trading partner. Instead, Bulgaria has developed considerable trade ties with the FRG and Japan. The Bulgarians are very interested in Western technology and use both legal and illegal methods to obtain it, making Bulgaria one of the CMEA's most important sources of high technology.

US trade with Bulgaria is restricted by the same laws restricting US trade with other European CMEA countries, being in the same export control group as the Soviet Union and other European CMEA countries as well as being subject to the terms of the Jackson-Vanik amendment to the 1974 Trade Act, linking the granting of MFN trade status and access to official US credit facilities to emigration performance. Bulgaria refuses to provide assurances required by the amendment and therefore does not enjoy MFN status on its exports to the United States.[22]

There is no formal, inter-governmental body between the United States and Bulgaria for the discussion of trade relations. Several official visits to exchange views on commercial issues have taken place in the last few years, which were generally noncontroversial. The sole exception to this was the visit to Sofia of Commerce Deputy Assistant Secretary Alexander Good in conjunction with the May 1984 Business Roundtable. In light of revelations of Bulgarian involvement in drug trafficking, there was some congressional opposition to official US Government endorsement of the Roundtable and of trade with Bulgaria through sponsorship of exhibitions at the Plovdiv International Trade Fairs. The Bulgarian Ministers of Transportation and of the Chemical Industry visited the United States in October 1982 and September 1983 respectively, and Deputy Foreign Trade Minister Pirinski visited Washington in May 1983. A congressional delegation led by Sam Gibbons (D-FL), Chairman of the House Ways and Means Subcommittee on Trade, visited Bulgaria in December 1983.

The only agreement of a commercial nature between the United States and Bulgarian Governments is one on Maritime Transport, signed and entered into force on February 19, 1981, and extended by an exchange of notes on February 13, 1984, for a 3-year period. In October 1985, however, the American Arbitration Association and the Bulgarian Chamber of Commerce and Industries reached agreement to designate the arbitration court of the Austrian Federal Chamber of Commerce in Vienna as arbiter of disputes between US and Bulgarian partners.

Bilateral Trade.—The small and relatively undeveloped Bulgarian economy as well as the lack of normalized trade relations with the United States has made US trade with Bulgaria the lowest of all the European CMEA countries since 1976, with the exception of 1981. Rising very slowly in the 1970's, total trade turnover between the two countries more than doubled from 1979 to 1980 and rose again by more than one-half the 1980 level to reach a high of $295 million in 1981, only to drop to $75 million, almost one-fourth the 1981 level, in 1984. In 1985, trade rebounded to $143 million, a 90% increase from 1984 but still less than one-half of the 1981 level.

The slow increase in the 1970's and the jump in 1981 was due almost solely to the increase in US exports to Bulgaria. These same exports were also the sole cause of the drop in total trade from 1981 to 1984. The primary US exports to Bulgaria are corn, soybeans, concentrated superphosphates and zinc ore. US imports from Bulgaria have remained generally at the same level, ranging between $27 and $39 million since 1979. Principal US imports from Bulgaria include cigarette leaf, pecorino cheese and wine. As these imports have remained at the same general level over the years while the level of exports have fluctuated, US exports have ranged from about 60–90% of total trade in the 1980's with export/import ratios ranging from almost 7 to 1 in 1981 to less than 2 to 1 in 1984. The trade balance, favoring the United States, increased from 1979 by 700% to $221 million in 1981 before falling by 94% to $13 million in 1984. It climbed again in 1985, to $65 million, the only trade surplus for the United States among all the East European countries.

Czechoslovakia

Business Contacts and Facilities.—Czechoslovak performance has not improved in the last few years as conditions for business representatives remain difficult. The establishment of business offices has been permitted since January 1976 (the Czechoslovaks stated that the decision to permit offices was taken to apply the spirit of the Helsinki Final Act), but official policy requires that in most cases permission to establish be granted only when there is some indication that the firm will buy from as well as sell to Czechoslovakia. US companies wishing to open business representation offices in Prague continue to experience difficulty in locating suitable office space and telephone and telex services at reasonable costs, and only four have accredited offices. The ECE, however, has reported an increase in the number of Western companies with offices in Czechoslovakia, from 46 in early 1985 to 56 in mid-1986.

Hotel accommodations are available, but with rates payable in hard currency and often inflated during trade fairs. One positive development has been the establishment of direct-dial telephone service between the United States and Czechoslovakia in 1983.

There has been no improvement in conditions for business travel, and some business representatives have complained about delays in visa issuance and inability to obtain multiple entry visas. All Western visitors must exchange approximately $10–$11 per day for the length of their visa. Before a visa can be extended, currency must first he exchanged equal to length of the extension. Only unspent Koruna in excess of the minimum required can be exchanged for hard currency upon leaving Czechoslovakia.

While access to officials of foreign trade organizations remained adequate, business representatives continue to be denied access to Czechoslovak end-users, despite announced changes that supposedly permit greater contact between Western business representatives and Czechoslovak enterprise personnel for foreign trade purposes.

The Chambers of Commerce of the United States and Czechoslovakia established the Czechoslovak-US Economic Council on October 17, 1975, and have since alternated the location of its annual meetings between various cities in the two countries.

Economic and Commercial Information.—There has been no improvement in the quantity or quality of economic and commercial information. Information on general trade and economic performance is available through several public sources, some of which are in English, but usually only with considerable delay. Data in the statistical yearbook are often 9 months old; information in other publications is often 1 to 2 months old. In a departure from past practices, 1982 national income data were reported in current, rather than constant prices, thereby overstating economic performance. Other economic indicators are given in terms of percentage increases only, rather than in unit volumes.

Despite one notable improvement—a statistical series in the monthly statistical index which contains relatively complete data on production and exports of major producers—Czechoslovak officials are still unwilling to provide enough information about the country's external financial or foreign trade position to permit American or Western banks to assess the risk of providing supplier financing.

Industrial Cooperation.—Czechoslovak reductions in planned imports have restricted further the opportunities for Western companies to engage in industrial cooperation projects. A frequent obstacle to conclusion of business deals are Czechoslovak requests for extended terms of payment and for supplier financing. According to the ECE, 9.9% of the known East-West cooperation contracts in force in the early 1980's were concluded with Czechoslovakia.

While there is no law for the establishment of joint ventures in Czechoslovakia, in 1986 the Czechoslovak Government made public a new policy on such ventures in a publication entitled "Creation of Joint Ventures in Czechoslovakia by Czechoslovak Organizations and Companies from Non-Socialist Countries, and their Activities." According to this publication, the Western partner may have only 49% ownership of a joint venture in Czechoslovakia, and a joint venture is limited to areas of industrial production. Czechoslovak citizens must be presiding members of decison-making bodies. Income will be taxed by a rate of 50%, with a 25% tax placed on profits repatriated by the foreign partner to a country which does not have a tax treaty with Czechoslovakia. There are no known tax incentives for these joint ventures.

There are a considerable number of Czechoslovak-owned and controlled firms in Western countries. These firms generally are involved in promoting sale of Czechoslovak goods, maintaining inventories, and in installing and providing service for Czechoslovak equipment. In the United States, such firms are involved, for example, in sale of machine tools, motorcycles, textile equipment, and other manufactured items.

Countertrade.—The Czechoslovak Government states that countertrade is not official commercial policy. Restrictive government borrowing policies nevertheless have caused increased demands for countertrade, extended payment terms, and supplier credits. Czechoslovak countertrade ratios generally range between 10–35% of the transaction, but if the purchase is not included in the foreign trade plan, higher ratios are often demanded. In 1986, some Western business representatives reported that they have been quoted a trade regulation specifying a counterpurchase ratio of 40% for their industries and spelling out what can be used for counter-products. Goods offered as payment are usually of a better quality than those offered my most other European CMEA countries, and most Western firms reportedly are willing to accept higher ratios if the goods received are relatively easy to market. In some instances, US firms producing equipment where there is considerable competition have made, on their own, significant purchases from Czechoslovakia unrelated to specific Czechoslovak purchases in the hope that this would be beneficial even in the absence of specific countertrade demands.

One large US firm, involved for a number of years in trade with Czechoslovakia and other East European countries, has made efforts to work out a system of international trading certificates with Czechoslovak banking and economic officials which would give greater flexibility in the countertrade area.

Inter-governmental Cooperation.—Trade relations between the United States and Czechoslovakia have never been very developed and have, if anything, deteriorated since 1982, despite the successful settlement of outstanding claims by US citizens and the US release of Czechoslovak gold in late 1981 and early 1982.[23] Czechoslovakia undertook austerity measures in the early 1980's to reduce its hard-currency indebtedness, including the establishment in 1981 of the "anti-import commission," which strictly screens hard-currency imports. Around 80% of Czechoslovakia's foreign trade is now oriented toward the Soviet Union and other East European countries. Furthermore, Czechoslovakia's generally critical attitude toward the United States has hindered the development of trade relations, as US firms seem to be viewed at times as suppliers of last resort.

US-Czechoslovak trade relations are not normalized, with no bilateral trade agreement. Czechoslovak officials have expressed an interest in receiving MFN trade status for their exports to the

United States, but they refuse to provide the assurances on freedom of emigration required by the Jackson-Vanik amendment to the 1974 Trade Act. This refusal also excluded Czechoslovakia from participation in US credit facilities. US exports to Czechoslovakia are subject to the same controls as those to all European CMEA countries except Hungary, Poland and Romania.[24]

No new developments of significance took place since 1982. In March 1985, the two governments successfully negotiated a voluntary restraint agreement on Czechoslovak exports of steel to the United States, permitting the importation of modest quantities of steel. In addition, in early 1985 a civil aviation agreement was reached, permitting direct air service to New York of the Czechoslovak national airline. In 1986, Pan American Airways resumed service to Prague for the first time since 1978.

There was a very limited number of high-level contacts between officials of the two countries. A congressional delegation led by Sam Gibbons (D-FL), Chairman of the House Ways and Means Subcommittee on Trade, visited Czechoslovakia in December 1983. Officials from the Commerce Department and the Office of the US Trade Representative also visited Czechoslovakia in the last few years. The April 1986 visit of US Assistant Secretary of State Rozanne Ridgway discussed, among other things, the facilitation of business ties.

Bilateral Trade.—While most of the bilateral trade between the United States and the European CMEA countries peaked in the early 1980's, US-Czechoslovak trade, like US-Soviet and US-Polish trade, peaked in 1979 at $331 million, more than double the 1978 level. From that peak, bilateral trade declined to a low point of $127 million in 1983, less than 40% the 1979 value. From 1981 to 1985, total trade turnover has ranged from the 1983 low to $171 million in 1982. US trade with Czechoslovakia in 1985 was only slightly higher than the US-Bulgarian trade, making US-Czechoslovak the second lowest value of US trade with a European CMEA country.

As bilateral relations developed during the 1970's, US exports to Czechoslovakia were increasing much faster than were US imports from that country. Exports peaked at $281 million in 1979, representing 85% of total trade turnover, only to fall by more than 20% by 1984, reflecting the cutback in overall Czechoslovak hard-currency imports since the late 1970's. At the same time, US imports from Czechoslovakia have increased from slightly less than $50 million in the peak year for total trade turnover, 1979, to $96 million in 1984, almost a 100% increase. This has turned a US trade surplus with Czechoslovakia that reached a high of $231 million in 1979 to deficits of $9 million in 1983, $38 million in 1984, and $22 million in 1985. The main victim of this change in US-Czechoslovak trade has been US exports of corn and soybean oilcake, which were principal exports in 1981 and 1982. In recent years, cattlehides, concentrated superphosphates, phosphoric acid and fertilizers have become major exports in recent years. Principal US imports from Czechoslovakia include hops, footwear, canned hams, tractors and other manufactured and semi-manufactured items.

German Democratic Republic

Business Contacts and Facilities.—Western firms wishing to establish an office in East Berlin are allowed only to rent space in the International Trade Center, which has strict access controls. Rent for office space in this building is very high, although support services reportedly are excellent. It is apparent that part of the reason for pressuring businesses to locate in the Trade Center is that it is easier to keep track of their activities. Many business representatives have complained of the questioning by the Trade Center's receptionists of visitors seeking a specific office. There are now five American companies with offices in the GDR, the newest one opening in 1985.

Hotel accommodations are adequate. Visiting business representatives are required to stay in the most expensive hotels available and must pay in hard-currency rates that are often double those charged to GDR citizens. Hotel charges during the Leipzig Fair, already excessive in the past, have been increased even further.

Resident business representatives are allowed to rent housing in the GDR, which is usually expensive and does not always meet normal Western standards. All housing must be obtained through a state-operated agency which determines the rent as well as the location of housing available to foreigners.

There has been no change in the GDR's policy of issuing business visas, which sometimes are available at the airport and often at the sector crossing points to East Berlin if in possession of a GDR hotel voucher. Business representatives generally do not experience problems with restrictions on travel and visas. Business representatives residing or maintaining offices in the GDR are often issued multiple-entry visas valid for 1 year. Nonresident businesspersons receive single—or multiple-entry visas for varying periods as requested by interested GDR trading partners.

As is the case for virtually all visitors to the GDR, nonresident foreign business representatives are required to exchange more than $12/day for local currency during their stay in the GDR. Unspent GDR currency cannot be reconverted into Western currency upon departure but must be either forfeited or deposited in a special account for use on a return visit.

Business representatives continue to complain about tight GDR customs regulations which sometimes prevent them from bringing sales literature into the country. GDR customs regulations prohibit the importation of printed material with the word "Germany" or "German" in the text or address. In addition, clearance is often denied for literature containing price lists or tear-out response cards, and only limited clearance is given to literature containing statistical information from non-GDR sources.

While US business representatives have had easier access to GDR planners and producers in recent years, contact with end-users remains difficult. The 1981 reorganization of the GDR foreign trade bureaucracy thus far has not led to noticeable improvements in access to end-users hoped for by the Western business community. Western businesses still must deal with a state-controlled foreign trade organization, and GDR citizens must obtain prior government approval for business and social contacts with Western representatives. As elsewhere in Eastern Europe, specialized agencies are representing an increasing number of Western firms. Plant visits usually are allowed only if the visitor is a buyer of GDR products, and even then, visits may be to plants which are not in operation and there is little contact with production engineers.

Since 1983, US business representatives reported better business contacts resulting from the Leipzig Trade Fairs. Many more scientists, engineers and end-users in general received permission to talk with Western suppliers than at previous fairs.

Bilateral contacts are maintained by the US-GDR Trade and Economic Council, established in 1977 and including approximately 20 US firms. The purpose of the Council is similar to that of the bilateral councils set up by the US Chamber of Commerce.

Economic and Commercial Information.—There has been no improvement in the availability of economic and commercial information during the reporting period. The yearbook is not published on a timely basis (usually 10–15 months late). Furthermore, Western business representatives often question the reliability of what information is given.

The GDR continues to provide scant information on its international accounts, refusing to provide information on total trade balance of payments, aggregate net and foreign debt, foreign trade broken down by trading partner and goods exchanged, and cash flow projections and statements of sources and uses of funds. The GDR Foreign Trade Bank (Deutsche Aussenhandelsbank) publishes an annual report that contains some information on foreign debt and foreign trade but is highly aggregated and, in general, does not serve the needs of banks and firms seeking to evaluate potential business relationships.

In 1984, the GDR increased the frequency but not the quality of its reporting on national output by industrial sector. In its major newspaper, *Neues Deutschland,* it began publishing on a monthly rather than a semiannual basis the percentage share of total national output produced by each of 12 major industries. It also showed each month the distribution of output by district.

Industrial Cooperation.—Of all the countries of Eastern Europe, the GDR has been the least active in industrial cooperation. The ECE has estimated that only 4.9% of all cooperation agreements in force in the early 1980's were concluded with the GDR This is due to the fact that the country is economically the most developed of the European CMEA countries and is therefore not so dependent on Western technology for economic growth. Furthermore, it always has been traditionally more conservative in its dealings with the West. At the same time, the attractiveness of long-term cooperation deals to a country which rigidly follows its plans has made GDR officials more open to this type of cooperation in recent years.

Joint ventures within the country and foreign ownership of business undertakings are not permitted under GDR law. The GDR, however, is interested in joint ventures and other cooperative arrangements in third markets. A few French firms have entered into cooperative ventures in third markets since an agreement covering this area was signed in January 1981.

The first joint manufacturing effort between the GDR and US industry was agreed to in 1984. The accord called for the production of compact "M-25" GDR trucks in Columbus, Ohio, over the next 5 years. US participants are "Technik and Trade" of Cleveland and "Trident Motors" of Columbus. Plans are underway to include the assembly of railcar loading and unloading equipment in this venture.

Countertrade.—The GDR actively seeks countertrade arrangements as a way to avoid spending hard currency, and setting this arrangement is often a condition of sale. Cooperation agreements for production within the GDR are often coupled with countertrade or buy-back features. Limitations on what the GDR can or is willing to supply and the unmarketability of some GDR products inhibit some US firms from entering countertrade arrangements, although less so than in some other European CMEA countries.

In the early 1980's, there was a definite increase in GDR countertrade demands, but they seem to have moderated with improvments in the country's hard-currency situation. In contrast to more East European countries, GDR officials insist that Western firms stagger the goods accepted as payment over a given period of time, primarily because of strict adherence to production plans which allow only a certain percentage of a particular good produced to be used for countertrade purposes.

Inter-governmental Cooperation.—US-GDR trade relations are not normalized and have not improved in the last few years. The GDR conducts most of its trade with other European CMEA countries, and its trade relations with the West are focused primarily on its special trade relationship with the FRG, which gives it a special access to the European Community market.

The United States has no trade agreement with the GDR, and there is no inter-governmental commercial commission. Despite negotiation efforts in recent years, outstanding official US and separate Jewish claims on the GDR could block any forward movement in bilateral trade relations. For US imports from the GDR to be subject to the MFN tariff rates, as well as to gain access to official US credit facilities, the GDR must meet the terms of the Jackson-Vanik amendment but thus far have failed to do so. US exports to the GDR are subject to the same controls as exports to all European CMEA countries except Hungary, Poland and Romania.[25] For several years, there was an "informal understanding" about GDR purchases of US grain. Since a September 1983, 3-year grain agreement was reached with Canada, however, the GDR has indicated that it no longer considers the understanding to be operative and has decreased its purchases of US grain.

Official contacts have been limited to the visits of Deputy Director of the GDR Ministry of Foreign Trade Siebold Kirsten and State Secretary Gerhard Beil to the United States in 1983 and 1985 respectively, and the visit of Undersecretary of Commerce Bruce Smart to the GDR in 1986. The first official US congressional delegation to visit the GDR was led by Sam Gibbons (D-FL), Chairman of the House Ways and Means Subcommittee on Trade, in November 1983.

Bilateral Trade.—US-GDR trade was among the lowest during most of the 1970's but began climbing steadily in 1977, doubling from 1978 to a peak of $527 million in 1980. As the GDR began to cut back on hard-currency imports generally, total trade turnover between the two countries began to fall steadily, with a modest increase in 1984, to a low of $175 million in 1985, one-third the 1980 level. From 1982 to 1985 trade fell by more than $100 million.

US exports were the major cause of the rise and fall of US-GDR trade as a whole. These exports rose sharply, from $170 million in 1978 to $478 million in 1980, representing over 90% of total trade turnover. From 1980, US exports to the GDR fell to $72 million in 1985, approximately 15% of the 1980 level and one-half the 1983 level. The major US exports to the German Democratic Republic in recent years are corn, soybeans and soybean oilcake, wheat and other types of grains, as well as some electrical, agricultural and other types of equipment.

US imports form the GDR did not, at first, make up a significant part of total trade turnover, representing less than 10% of this trade in 1980. From 1979 to 1983, however, this trade grew modestly and then jumped by about 260% in 1984 to $167 million, creating for the first time a deficit, amounting to about $30 million, in US trade with the GDR Combined with the drop in US exports, US imports from the GDR have risen to almost 60% of total bilateral trade in 1985. Major imports are light fuel oils, passenger car tires, certain chemicals and semi-manufactured metal products.

Hungary

Business Contacts and Facilities.—Working conditions for Western firms are generally better than elsewhere in Eastern Europe and have remained satisfactory. While the Hungarians prefer that Western businesses work through agencies established to represent them, the opening of offices is permitted "in exceptional cases." There are currently three American companies with offices. One new firm opened an office in January 1986, while onother closed its office for commercial reasons.

The opening of the Budapest World Trade Center as well as a small apartment complex housing Western business representatives has mollified marginal difficulties in identifying suitable housing and office space. The cost of maintaining a representation office remains high, and the process for establishing an office is cumbersome and fraught with bureaucratic delays. Western firms seeking office and housing accommodations and telephone and telex services often experience considerable delays.

The number of deluxe and first-class hotel accommodations for business travelers, as well as for convention and tourist purposes, is good and still expanding. The availability of medium-level, medium-priced hotel rooms, while recently still in short supply, is steadily increasing and is not only a minor problem. There are virtually no travel restrictions while in Hungary, and there have been no complaints by business representatives in obtaining visas.

Business access remains satisfactory. There are several specialized agencies that can represent Western firms doing business in Hungary and are more aggressive than FTOs in making contacts with end-users. Representatives from small and medium-sized firms still experience some difficulty in getting access to end-users, although some end-users are exercising new autonomy under recent

Hungarian regulations and have actively sought out Western business representatives, circumventing, the FTO. The total number of firms with autonomous foreign trading rights is about 300 and continues to grow.

The Hungarian-US Economic Council was established on March 14, 1975, between the Chambers of Commerce of the two countries and has since become an important vehicle for business contacts between American business representatives and their Hungarian colleagues.

Economic and Commercial Information.—Economic and commercial information generally is available in newspapers, journals, and specialized economic publications. Willingness of enterprises to permit plant visits has enabled Western business representatives to gain access to more detailed economic and commercial information. Hungarian commercial representatives and managers seem to discuss matters freely when specific questions are posed. In addition, Hungarian entry into the World Bank and the IMF and participation in an IMF standby program have led to qualitative improvements in the economic and financial information available.

Industrial Cooperation.—The Hungarian Government has maintained its commitment to promote joint ventures and other forms of industrial cooperation as Western businesses are encouraged to explore ways of doing business beyond traditional buying and selling. Industrial cooperation arrangements are considered the basis for Hungary's trade expansion program. As a result, Hungary is the most active in industrial cooperation. According to the ECE, 33.1% of all cooperation agreements in force in the early 1980's were concluded with Hungary.

The Hungarians first began to clear the way for joint ventures back in 1972, and the number of them registered in Hungary doubled between 1983 and 1985 and now stands at about 50. This number is expected to grow further, particularly in the industrial sectors designated for expansion.

Further action was taken in 1977 and 1979 to make Western investment in Hungary more attractive. The areas for cooperation were expanded to those of actual manufacturing and production of goods, and the joint companies were only taxed on their profits. In late 1982, the Hungarians announced new regulations relating to duty-free zones and the possibilities for joint ventures therein, but they have not yet proven a significant inducement for Western investment. Western investors can now hold a majority share in joint venture; in 1984, a West German firm entered into a joint venture in which, for the first time, the Western partner owns 51%. The Hungarian Government has increased its commitment to promote joint ventures by issuing an amended joint venture law in January 1986, which provided greater tax incentives and more flexible operating rules. The law reduced profit tax on joint ventures, and for the first time codified prior practice of providing tax holidays for new joint companies.

Countertrade.—Countertrade practices have become much more common in Hungary during the 1980's, despite the fact that they are not espoused as an official policy of the Hungarian Government. Hungarian officials claim that countertrade demands are simply used by FTOs as a bargaining weapon. Generally, those exporting products included in the Hungarian foreign trade plan or high priority products can weaken significantly or even ignore such demands. On the other hand, those exporting luxury or nonessential products can experience high demands for compensation. Western firms can lodge complaints of unreasonable countertrade demands by Hungarian FTOs to the Ministry of Foreign Trade.

Some companies have been successful in pursuing more flexible countertrade deals with Hungary by making general purchases of Hungarian products in advance of selling its product, which in these cases are often treated on a priority basis. Western companies generally are offered a wide range of items for purchase.

Inter-governmental Cooperation.—Because of a poor resource base as well as a small and declining population, Hungary is very dependent on foreign trade and, relative to the other European CMEA countries, has a larger percentage of its trade directed toward the West.

US trade relations have been good since the late 1970's and, in recent years, have developed steadily, albeit modestly. Trade relations have been normalized since a bilateral trade agreement was brought into force in 1978, reciprocally extending MFN trade status. Hungary's MFN status is subject to annual renewal, in accordance with the Jackson-Vanik amendment, and has been renewed each year since 1978. Official credits have been available to Hungary through the Commodity Credit Corporation and the Export-Import Bank. An inter-governmental body, the US-Hungarian Economic and Commercial Committee, was created in 1978 to discuss bilateral trade issues and has met each year since. In addition, since June 1980, Hungary was moved from the classification group for US export controls containing most European CMEA countries (except Poland and Romania) to the group containing Poland, consistent with a continuing US policy of differentiation between the European CMEA countries.[26]

Among the positive developments in the last few years was the renewal of the bilateral civil air agreement and the resumption of direct Pan American Airways service between New York and Budapest (two flights weekly in both directions) in mid-1983. Also, on February 25, 1983, the United States and Hungary concluded an Agreeement on Trade in Wool Textiles, which was effective retroactively on October 2, 1982, through December 31, 1986.

In addition, as the following chart shows, Hungary has increasingly made use of US Government credit facilities since it gained access to them in 1978, particularly since 1982. The increase is evident not only in terms of the value of outstanding debt to the US Government but also the US Government's share of Hungary's officially-backed hard-currency debt.

HUNGARY: COMPOSITION OF HARD CURRENCY DEBT TO THE UNITED STATES GOVERNMENT

[Millions of US dollars]

	1978	1980	1981	1982	1983	1984	1985
Total US Govt	5	9	11	26	58	88	79
Eximbank Loans	0	8	5	8	6	4	2
Eximbank Guarantees	0	0	0	18	18	4	3
CCC Credits	5	1	5	0	0	0	0

HUNGARY: COMPOSITION OF HARD CURRENCY DEBT TO THE UNITED STATES GOVERNMENT—Continued

[Millions of US dollars]

	1978	1980	1981	1982	1983	1984	1985
CCC Guarantees	0	0	0	0	34	80	69
Total Officially-backed Debt	93	300	365	525	740	830	820
Percent of which is Total US Govt	5.4	3.0	2.9	5.0	7.8	10.5	9.6
Gross Debt	7,290	9,090	8,700	7,700	8,260	8,500	11,760
Net Debt	6,349	7,000	7,050	6,600	6,690	6,400	8,860

Source: US Department of Commerce.

Several high-level meetings occurred between Hungarian and US officials in the last few years, as they have in previous years. This included a visit by Vice President George Bush in September 1983 and by Secretary of State George Shultz in December 1983. William Draper, president of the US Export-Import Bank, also visited Hungary in September 1984. The House Ways and Means Subcommittee on Trade delegation led by Sam Gibbons (D–FL) also visited Hungary. In September 1986, Minister of Industry Laszlo Kapolyi visited the United States.

Bilateral Trade.—Resulting from the normalization of trade relations in 1978, US-Hungarian trade had climbed slowly, with a slight decline only from 1981 to 1982. In 1985, total trade turnover reached $335 million, double the 1978 level but only 56% higher than the 1982 level.

The level of US exports to Hungary has been erratic, climbing 1 year and dropping the next. In 1982, these exports were valued at $68 million, $30 million less than the 1978 value. It then climbed more than 60% to just above $110 million in 1983. It has since declined in value, to $88 million in 1984 and to $94 million in 1985, which is slightly less than the 1978 figure. The primary US exports to Hungary are soybean oil cake, corn, cattlehides, tractor parts, fertilizers and fertilizer materials.

US imports from Hungary, on the other hand, have increased steadily since they have enjoyed the lower tariff rates with MFN treatment. The imports more than doubled from 1978 to 1981 and rose to $242 million in 1984 and $241 million in 1985. This represents an increase of 250% from 1978 and a 65% increase from 1982. The major US import from Hungary in recent years has been canned ham, followed by parts for motor vehicles, lamps and women's footwear.

The result of these trade trends has been a trade deficit for the United States, beginning in 1979 at $34 million and growing by 345% to a peak of $157 million. As both US exports to and imports from Hungary were essentially unchanged from 1984 to 1985, the change in the trade deficit was not significant. In 1985, the export/import ratio was 0.4, reflecting the size of this deficit.

Poland

Business Contacts and Facilities.—Generally, it is not difficult to obtain permission to open a representation office in Poland, although the foreign trade building "Intraco," which opened in October 1975, is full and has a long list of applicants. Most alternative locations are apartments, some of which are sublet from private owners. High rental costs and occasional shortages of adequate telephone and telex service, however, remain obstacles. Suitable housing for residents outside hotels is very limited unless one is willing to pay in convertible currency.

A few companies with technical information offices (as opposed to commercial branch offices, which are required to pay a higher registration fee as well as 2.5% of invoiced sales to the Polish Government) have reported some government pressure to convert to full branch status. One positive development was that "American Travel Abroad," a tourist agency that will cater especially to Polish-Americans visiting Poland, was granted a 5-year license (instead of the usual 2) by the Ministry of Foreign Trade. Another positive development was the opening in 1986 of a "Radio Shack" type electronics store in Warsaw by the Tandy Corporation.

No apparent general restrictions were put into effect on the issuance of business visas, and, in some instances, business travellers received visas on a priority basis for travel needed to complete commercial transactions. As of March 31, 1985, foreign visitors were required to exchange 20% more currency daily.

With the suspension of elements of martial law in December 1982, travel in Poland became less restricted for its citizens and for foreigners, including business representatives. No restrictions on business travel are in effect. In early 1984, government relaxation of passport restrictions has permitted more Polish economists, business representatives, and scientists to travel to conferences and academic institutions.

Western business representatives continued to have adequate access to Polish end-users and commercial officials, although visits to factories that are part of a sensitive industry can be difficult. In 1985, the Polish Government granted foreign trade rights that enable state and private enterprises to deal directly with Western firms.

The US Chamber of Commerce and the Polish Chamber of Foreign Trade established the Polish-US Economic Council on October 8, 1974. Following the declaration of martial law in December 1981, Poland still sought cooperative activities through the private Polish-US Bilateral Economic Council. However, in early 1984, the Polish Chamber of Foreign Trade arbitrarily cancelled participation in a joint meeting of the Council, apparently because of the strained state of official relations. In late 1985 and early 1986, however, there was a significant increase in economic cooperation by Poland with other Western partners as economic meetings between Poland and several Western governments were reestablished.[27]

Economic and Commercial Information. By East European standards, statistics tend to be of above-average reliability and accuracy. The Western business community has access to organizational information. Economic data, including some foreign trade and planning statistics, is published regularly. Publication of financial information is more complete than in the past. Polish officials have been generally forthcoming in providing financial information necessary to discuss rescheduling Polish debt with Western banks and governments. Some information, however, does not contain enough detail to permit thorough economic analysis or adequate market research, because it is presented in a way to give a positive impression. Joining the International Monetary Fund (IMF) and the World Bank in June 1986, Poland will now begin to base its economic statistics on United Nations standards.

Industrial Cooperation.—During the early 1970's, Poland began to initiate an economic strategy highly dependent on foreign trade with the West. Large amounts of technology, machinery and expertise were imported on the assumption that this would not only improve the domestic economic situation but also increase and diversify Polish foreign trade, thus paying for itself in the long-run. Industrial cooperation figured highly in this strategy, and, in the late 1970's, Poland ranked second only to Hungary among the East European states in the number of interfirm agreements signed. According to the ECE, 14.2% of all known East-West cooperation agreements in force in the early 1980's were concluded with Poland. In fact, the value of Poland's industrial cooperation with the West, may exceed that of Hungary because Poland has emphasized much larger forms of industrial cooperation.

However, Polish involvement in industrial cooperation declined as the Polish trade strategy seemed to provide diminishing returns and debt to the West increased. At the same time, Poland continues to seek foreign investment in underutilized industrial capacity. Licensing arrangements remain possible, as does joint production in and for third markets, both in goods and services.

Joint ventures have been possible since 1976 in areas such as retail trade, services and handicrafts, and since 1979 for manufacturing. The details of the relevant decrees, however, discouraged rather than encouraged Western interest in joint venture activity in Poland. Around 1982 and 1983, the State Planning Commission and other economic bodies began to work on new legislation to increase incentives for Western companies. This new law was approved by the Polish *Sejm* in April 1986 and went into effect in July 1986. With few exceptions, the Polish partner is to retain a majority share in any joint venture.

More successful have been the so-called Polonia firms, located in Poland but wholly or partially owned by Poles living abroad. In principle, such firms can export directly, build on state-owned lands, and officially be allocated resources from central authorities. In early, 1984, however, some Polonia firms reported greater bureaucratic difficulties and occasionally overzealous enforcement of regulations. Polish authorities became stricter regarding where in Poland a Polonia firm may set up business and what products it may manufacture. The Polish Government levies up to 85% income tax on earnings by these firms, making it very difficult for many of them to operate profitably and, in some cases, at all. Some potential Polonia investors have actually given up after harassment by officials and excessive delay in obtaining permission to open an office. In early 1985, the Polish Parliament enacted legislation raising the obligatory hard-currency deposit several-fold at the time of the establishment of Polonia firms. The complex and frequently changed regulations under which they operate are allegedly designed to prevent profiteering and other abuses. Firms which would compete directly with a state-run enterprise or exporting agency are usually denied permission to operate. Many Polonia firms, however, continue to prosper and enjoy general government backing. The total number of Polonia firms is over 700, of which about 70 are US-Polish firms.

Countertrade.—Officially, Poland does not encourage or discourage countertrade arrangements, but Polish FTOs frequently urge business representatives to include countertrade provisions in contracts. Poland's financial problems are prompting more demands for compensation arrangements with Western business partners, especially in products of which Poland has an ample supply. US firms facing countertrade demands often find goods offered in countertrade to be unacceptable. Occasionally, they are unable to market these goods. While Poland at one time engaged in buy-back deals, the poor performance of Polish contractors has led to a more cautious approach.

Inter-governmental Cooperation.—Less like those with the other East European countries and more like that with the Soviet Union, US trade relations with Poland have been in a state of flux due to the imposition of sanctions following the declaration of martial law and the outlawing of the independent trade union Solidarity. Following the shattering of rather-developed trade relations in 1981 and 1982, the last few years have seen a general relaxation of US restrictions on commercial interchange with Poland.

Prior to the imposition of various economic sanctions on Poland, US-Polish trade relations were fairly well-developed in comparison with US trade relations with other European CMEA states. While there is no bilateral trade agreement, trade was already normalized. Poland enjoyed MFN status on its exports to the United States since 1960 and therefore was the only European CMEA country not subject to the terms of the Jackson-Vanik amendment to the 1974 Trade Act. Bilateral trade issues were discussed in annual meetings of the inter-governmental American-Polish Trade Commission. Poland also has been placed in a separate classification group for export controls since the 1960's as part of the US policy of differentiation among the European CMEA countries.[28] Poland also had access to official US credit facilities.

With the imposition of martial law in December 1981, the US Government took several steps to indicate its displeasure with the martial law regime, including the announcement of various economic sanctions on December 23, 1981. In addition, US official credits to Poland were suspended in accordance with a January 11, 1982, decision of the NATO countries. Agreement was also reached with the Paris group of creditors not to negotiate rescheduling of Poland's 1982 debt obligations until martial law was lifted, prisoners were released, and dialogue began in earnest and in a free atmosphere between the Polish Government, the Catholic Church and Solidarity. The United States also pursued coordination of high-technology export controls with its NATO allies and opposed action on Poland's pending application for membership in the International Monetary Fund (IMF). Meetings of the American-Polish Trade Commission were stopped as well.

On October 8, 1982, the Polish Government declared the Solidarity Trade Union illegal. In response the United States suspended Poland's MFN status, effective November 1, 1982. This was modified slightly on April 14, 1983, to grant MFN status to goods imported pursuant to written contracts signed before October 1982 and imported into the United States before June 30, 1983. The action was justified on grounds of Poland's noncompliance since 1978 with its 1967 GATT obligations to increase imports from other GATT members by not less than 7% per year.

The major difficulty in US economic relations with Poland has been the rescheduling of Poland's foreign debt within the multilateral framework of the Paris group of creditors. Poland has found it easier to reach agreement on debt repayment with Western banks than with Western governments. Polish officials first reached agreement with Western banks, including US banks, on the 1982 debt in November of that year. However, the 1982 official debt to Western governments was neither paid nor rescheduled because the West, led by the United States, refused to enter into negotiations with Poland as part of the package of sanctions against the Polish regime. Of the $3.1 billion of official debt due that year, $665 million (21%) was owed to the US Government, mostly to the Commodity Credit Corporation. Poland also owed approximately $1.5 billion in 1982 interest on its total debt to Western governments, of which $149 million was to the US Government.

Although the lifting of martial law by the Polish Government on July 22, 1983 did not change significantly the state of Poland's relations with the West, it did cause some improvement in US-Polish trade relations. For example, on October 20, 1983, the United States announced the allocation of specialty steel import quotas to Poland, the only nonmarket-economy country among several countries to receive them. Then, on November 2, 1983, the United States agreed to join other Western governments to discuss rescheduling the official portion of Poland's debt. Negotiations proceeded very slowly and with great difficulty because the absence of talks since 1981 had greatly complicated the Paris Club negotiations. At issue were arrearages from the 1981 agreement, the rescheduling of payments due from 1982-84, and Polish requests for additional official credits from major Western trading partners.

An agreement on the 1982-84 debt rescheduling was initialed in January 1985, just as the need to begin discussions on 1985 debt payment renegotiations became yet another issue. Although initialed, the Polish Government refused to sign the agreement until it had specific commitments from its major Western trading partners—the FRG, the United Kingdom, Austria and Italy—regarding additional official credits. By July, all of these creditors except Italy had signed bilateral agreements with Poland, and on July 15, 1985, the agreement to reschedule $11.5 billion official debt payments for 1982-84 was signed by Poland and 17 other nations.[29] The same creditor countries were able to renegotiate the $1.5 billion in payments due in 1985 by November 19, 1985. An agreement to reschedule the $2.06 billion in payments due in 1986 and 1987 was reached on June 12, 1986 as Poland reached final agreement to become a member of the IMF.

In late July 1986, Poland and the United States signed a bilateral agreement to reschedule $1.7 billion of the debt owed to the US Government as part of the overall settlement reached in Paris. The status of the debt, according to the Department of Commerce in March 1986, is as follows:

POLAND: COMPOSITION OF HARD CURRENCY DEBT TO THE UNITED STATES GOVERNMENT

[Millions of US dollars]

	1978	1980	1981	1982	1983	1984	1985
Total US Govt	863	1701	1882	1973	1942	1819	1819
Eximbank Loans	184	209	238	242	242	242	242
Eximbank Guarantees	7	18	9	1	0	0	0
CCC Credits	655	566	496	679	680	670	670
CCC Guarantees	0	899	1,040	630	319	0	0
Total Officially-backed Debt	5,139	10,100	11,285	11,160	15,500	16,660	18,700
Percent of which is total US Govt	16.8	16.8	16.7	17.7	12.5	10.9	9.6
Gross Debt	17,844	25,000	25,500	24,800	26,400	28,200	29,300
Net Debt	16,972	24,530	24,700	23,800	25,130	26,650	27,710

Source: US Department of Commerce.

In November 1983, Poland was permitted to reopen discussions with private US companies about potential fishing arrangements, although the President did not immediately lift the ban on fishing by Polish nationals in US waters. After consideration of Lech Walesa's request on December 5, 1983 to end economic sanctions against Poland, the United States fully lifted the ban on Polish fishing rights in US waters on January 19, 1984. The fisheries agreement (GIFA)[30] between the two countries was renewed through an exchange of notes on May 7 and May 30, and in midsummer the United States allocated Poland a total of 70,000 metric tons of fish.

At about the same time, in response to the July 21, 1984, amnesty of political prisoners in Poland, the United States agreed shortly thereafter to lift the ban on regularly scheduled flights by the Polish national airline, LOT, subject to a "regularlization" of the US-Poland civil aviation relationship and the full "reestablishment" of bilateral scientific exchanges. In the same announcement, the US administration stated that the United States would consider withdrawing its opposition to Polish membership in the IMF on the condition that a "complete and reasonable" implementation of the Polish amnesty took place and that Poland expressed its willingness to fulfill the obligations of IMF membership.[31] President Reagan also announced in August 1984 that he would seek support for US Government donations to support the first phase of the Polish Catholilc Church's program of aid to private farmers, which excludes Polish Government participation. In February 1987, the United States lifted the remaining sanctions on Poland by resorting MFN status on US imports from Poland and permitting the granting of further government credits or credit-guarantees. In addition, high-level visits and meetings of the bilateral Trade Commission will likely resume.

Bilateral Trade.—Throughout the 1970's, Poland was by far the leading US trading partner among the East European states, representing about 50% of this trade for much of the late 1970's. Total bilateral trade turnover peaked in 1979 at $1.2 billion, declining slightly to $1.1 billion by 1981. In 1982 trade fell by approximately 50% to $524 million as a result of both a cut-back in Polish hard-currency imports and sanctions placed on Poland in response to the declaration of martial law in December 1981. Since that significant drop, the level of total bilateral trade has remained even, ranging between $563 million in 1984 and $485 million in 1985.

US exports to Poland peaked in 1979 at $786 million, representing 65% of total trade turnover. By 1985, the value of exports dropped by almost 70% to $238 million, representing just under 50% of total trade turnover. While corn, soybeans and soybean oilcake, fertilizers and fertilizer materials have been the primary US exports to Poland over the years, in recent years food and other products donated for relief or charity have become the major items for export to that country.

US imports from Poland have suffered as well, although not to the extent that exports have. Peaking in 1980 at $459 million, these imports fell to $209 million in 1983, recovering to $247 million in 1985. The major US imports from Poland in recent years have been canned hams, pollock blocks, woven fabrics, clothing and iron and steel plates. As these imports did not fall as much as exports, Poland's trade deficit, amounting to $360 million in 1980, has dwindled and turned into a $9 million trade surplus by 1985.

Romania

Business Contacts and Facilities.—Business facilities are greatly affected by the very poor living conditions in Romania generally, and the handling of inquiries is slow and tedious. Firms are commonly offered commercial office space in one of the several downtown Bucharest hotels. Hotel accommodations for visiting business representatives are adequate but increased in price by 13.6–25% in July 1986. Firms may also rent space on premises owned by the Romanian Government agency "Argus." It takes 6 to 8 months or longer to process a Western firm's application for authorization to open a representative office.

Rents charged by Romanian agencies are comparable to market rates in world commercial centers. Telecommunications services are extremely costly. Utility rates rose sharply in 1983. Increases in hotel accommodation costs, rents for housing and office space, in addition to excessive telephone, telegraph and associated business costs have combined to become a burden to the development business. As a result, some businesses are being forced to reduce their presence or close down entirely. There are currently 30 US firms with offices in Bucharest. In recent years, four American companies opened offices while three closed offices.

Business travel is not impeded, and restrictions are minimal. The mandatory exchange of about $10 per day into Romainan lei is not required for people entering the country on a business visa. Since January 1983, American business representatives' access to special stores has become more restricted despite protests to Romanian officials. Inadequate supplies of goods in Romania require that business representatives residing there order many things from abroad, increasing the otherwise low cost-of-living.

Business representatives have adequate access to foreign trade organization directors and their staffs. Because of recurring personnel changes, the greatest problem business representatives face is identifying responsible decision-makers for negotiations.

In January 1986, the Romanian Government started tightening access of business persons to plants and projects. Access to protocol rooms of such facilities can be obtained, but production lines can be visited only with the express approval of respective ministries or FTOs. So far, experience indicates that this permission is usually denied. It has been estimated that Romania already has lost $50 million in sales to American firms as a result. Foreign inspectors are being denied access for safety and quality control checks required by contract to commercial transport aircraft being produced under license in Romania. Safety inspectors for a foreign firm building a large nuclear reactor have been denied access to local subassembly production facilities since December 1985, although recent reports suggest they have been permitted limited access.

The US Chamber of Commerce established a bilateral forum with its Romanian counterpart for the discussion of trade issues. The Romania-US Economic Council has held annual meetings, alternating between the two countries, since its establishment on December 4, 1973.

Economic and Commercial Information.—Information of the general economic situtation remains limited and is still reported late, but Romania continues to distribute numerous useful publications on doing business in Romania in several languages. Economic officials at all levels generally operate on the assumption that any information not published is considered secret. Yearly statistical data are published 12 to 14 months following the close of the year covered and are often not comparable from year to year. However, in conjunction with its foreign debt restructuring, Romania has provided more specific information to foreign banks, governments and international financial institutions.

Industrial Cooperation.—Romania promotes industrial cooperation with the West and allows joint ventures to be established on its territory before any other European CMEA countries. While joint ventures in Romania are promoted, the difficulties in establishing them has limited possibilities. According to the ECE, only 5.8% of the cooperation agreements in force in the early 1980's were concluded with Romania. Joint ventures are very strictly supervised by the Romanian authorities. Only one US firm is a partner in a joint venture located in Romania.

The Romanians are interested in greater cooperation between Romanian and American companies in third countries. US companies have not found such cooperation to any particular advantage and have not engaged in it except for ordinary subcontracting arrangements. There are four Romanian joint ventures in the United States.

Countertrade.—Romania is the only European CMEA country to require importing agencies to engage in countertrade as a matter of principle. Some Western companies have been reviewing their relationships due to poor business prospects resulting from Romania's insistence on high countertrade demands. Romanian countertrade demands of 100% are routine. US firms have difficulty in identifying acceptable Romanian goods for counterpurchases. Most are not only very difficult to market in the West because of their poor quality but also are overpriced relative to other East European goods.

Inter-governmental Cooperation.—Overall Romanian foreign trade policy is directed at expanding trade with the West, although its hard-currency debt has skewed that policy heavily toward expanding exports to and reducing imports from Western countries. Once a large producer of petroleum, Romania turned into a net importer of oil in the 1970's, just as oil prices skyrocketed.

Of all the European CMEA countries, Romania has the most well-developed trade relations with the United States. A trade agreement between the two states has been in effect since August 1975, and Romania enjoys MFN status on its exports to the United States as well as access to US Government credit facilities for its imports from the United States.[32] In November 1976, the two countries brought into force a Long-Term Agreement on Economic, Industrial and Technical Cooperation. Other inter-governmental agreements include a September 1975 Protocol on the Development of Agricultural Trade, a June 1976 Agreement on Maritime Transport, a November 1976 Fisheries Agreement (GIFA)[33] and numerous agreements over the years dealing with specific US imports from Romania, some of which were negotiated and implemented since 1982. For example, an Agreement on Cotton Textiles replaced an earlier agreement on March 31, 1983. In addition, the American-Romanian Economic Commission has met regularly since its founding in December 1983 and has become the central forum for inter-governmental discussion of US-Romanian economic relations.

Romania has made extensive use of US Government credit facilities, as the following chart indicates:

ROMANIA: COMPOSITION OF HARD-CURRENCY DEBT TO THE UNITED STATES GOVERNMENT

[Millions of US dollars]

	1978	1980	1981	1982	1983	1984	1985
Total US Govt	137	189	309	232	199	155	142
Eximbank Loans	73	87	91	96	87	61	96
Eximbank Guarantees	9	15	87	0	0	33	5
CCC Credits	55	93	52	19	32	41	41
CCC Guarantees	0	0	41	40	24	0	0
Total Officially-backed Debt	800	1,670	1,845	1,430	1,660	1,180	1,080
Percent of which is Total US Govt	17.1	11.3	16.8	16.2	12.0	13.1	13.1
Gross Debt	5,221	9,400	10,160	9,780	8,760	7,100	6,600
Net Debt	4,992	9,100	9,815	9,400	8,250	6,400	6,400

Source: US Department of Commerce.

Romania experienced serious difficulties in meeting its 1981–82 debt repayment obligations due to a growing hard-currency trade deficit. Of the total debt of $10.2 billion in 1981, $4.3 billion, or 43%, was due that year alone, and not only to Western banks and governments but to the IMF, the World Bank, developing countries and Socialist countries as well.

In July 1982, Romania reached agreement with Western governments to reschedule $500 million in 1981–82 debt on medium and long-term official credits. Short-term credits were not rescheduled. Within the framework of this agreement, the United States and Romania reached an agreement on the consolidation and rescheduling of debts owed to, guaranteed or insured by the US Government and its agencies on March 10, 1983. In early December 1982, Romania signed a similar agreement with representatives of over 200 Western commercial banks, including US banks, to reschedule its 1981 and 1982 debt, which totaled $500 million and $2.4 billion respectively.

Romania rescheduled 60%, or about $130 million, of its 1983 official debt repayments at the Paris Club in May 1983. To further assist the Romanian economic situation, in September 1983 the US Export-Import Bank reopened a loan originally approved in 1981 but suspended in March 1982 in light of Romania's balance of payments difficulties. The purpose of the loan was to finance Romanian purchases of US goods and services for the construction of a nuclear power station. Romanian commercial bank debts were rescheduled in June 1983. There was no rescheduling of Romania's debt repayments in 1984 or 1985, as Romania was able to create and increase a current account surplus.

Romania's poor human rights performance has made bilateral trade relations fragile. In November 1982, Romania enacted a decree requiring Romanian citizens wishing to emigrate to repay the state for the costs of their education beyond the compulsory level. This decree, according to the US Government, violated the language and intent of the Jackson-Vanik amendment. On March 4, 1983, the United States responded by announcing that it would terminate Romania's MFN status on June 30, 1983 if the education repayment decree remained in force on that date. Following extensive discussions and an exchange of letters between President Reagan and President Ceaucescu, the Romanian Government ceased implementing the decree. The administration has renewed Romania's waiver to the terms of the Jackson-Vanik amendment every year since, although there have been numerous efforts in the US Congress to disapprove the annual extension.

On January 2, 1987, the US Government announced that Romania will lose its benefits under the Generalized System of Preference (GSP) program, which waives import duties on selected goods from developing countries. The action was taken after a 2-year review which determined that Romania has not taken steps to accord its citizens internationally recognized workers' rights, a requirement GSP beneficiaries have had to meet since 1984.

There have been several trade-related official meetings between the United States and Romania. In October 1983, for example, Commerce Secretary Malcolm Baldrige visited Bucharest in connection with a meeting of the bilateral commission. The congresssoinal delegation led by Sam Gibbons (D–FL), Chairman of the House Ways and Means Subcommittee on Trade, visited Romania in December 1983. In September 1984, Nicolae Eremia, president of the Romanian Bank of Foreign Trade, came to Washington and met with US Export-Import Bank president William Draper.

Bilateral Trade.—US trade with Romania during the 1970's was second only to that with Poland among the East European countries. Following the normalization of trade relations in 1976, US-Romanian trade grew rapidly and surpassed US-Polish trade in 1981 at $1.1 billion. While bilateral trade with Romania fell by over $500 million from 1981 to 1982, Romania remained the leading East European trading partner of the United States as US-Polish trade dropped by a greater amount. Total trade turnover soon recovered, more than doubling from 1982 to 1984 before falling in 1985.

While total bilateral trade with Romania has recovered to levels exceeding 1980 and 1981, US exports have decreased significantly, from $722 million in 1980 to $208 million in 1985, a decrease of about 70%. Leading US exports to Romania include soybeans, cattlehides, corn and bituminous coal.

US Imports, on the other hand, have increased significantly. Averaging between $300 and $380 million in the late 1970's early 1980's (with the exception of 1981, when the figure was $612 million), in 1983 US imports began to increase. They reached $969 million in 1984, an increase of more than 150% from the 1982 value. The value of imports in 1985 was $950 million, only slightly less than for 1984. Major imports from Romania have been napthas, gasoline, mixtures of liquid from hydrocarbons derived from natural gas, and various petroleum products.

The increase in US imports from and the decrease in exports to Romania have created a trade deficit which has grown from $108 million in 1981, the year it began, to $742 million in 1985, almost seven times the 1981 deficit. This deficit was the result of Romania's policy to strictly limit hard-currency imports in the 1980's.

CHAPTER THREE

MULTILATERAL COOPERATION: U.N. ECONOMIC COMMISSION FOR EUROPE

Overall Cooperation

The participating States have mandated the holding of subsidiary experts meetings, fora, seminars, et cetera, on specific areas covered by the Final Act between the follow-up meetings of the CSCE. Multilateral work in Basket II, however, thus far has been mandated to the United Nations Economic Commission for Europe (ECE), located in Geneva, Switzerland, which has a membership almost identical to that of the CSCE.[34] The ECE is one of five regional economic commissions which reports to the United Nations General Assembly through the Economic and Social Council. Created in 1947, its original purpose was to foster the economic reconstruction of Europe in the post World War II period. As Europe recovered economically, the organization increasingly took on responsibilities for matters of importance to East-West economic cooperation. Today, the ECE is the only multilateral body where the governments of both East and West meet regularly to discuss issues relating to all forms of East-West economic cooperation, from trade and industrial cooperation to energy, transport and environmental concerns.

The CSCE gave much needed impetus to ECE efforts in East-West economic cooperation in the areas of trade, industrial cooperation, science and technology environment, energy transport, statistics, and standardization. The Madrid Concluding Document reaffirmed and expanded the ECE's role as the principal forum for the multilateral discussion of these and other Basket II issues. In particular, it added to ECE discussion on problems associated with the various forms of compensation trade. The Executive Secretary has reported to recent Commission sessions on ECE activities taken in light of various Helsinki and Madrid provisions.[35]

Much of the ECE's work is rather technical and specialized, involving detailed studies and discussion among specialists in various fields. There are 15 specialized committees—Agricultural Problems; Chemical Industry; Coal; Electric Power; Gas; Housing Building and Planning; Inland Transport; Steel; Timber; Development of Trade; Water Problems; Conference on European Statisticians; Senior Economic Advisors; Senior Advisors on Environmental Problems; and the Senior Advisors on Science and Technology—and a number of other subsidiary bodies, such as the Senior Advisors on Energy. Study tours to member countries are occasionally arranged in connection with meetings of these bodies. A substantial number of US Government departments and agencies, as well as private sector representatives, actively participate in ECE-sponsored meetings. The Secretariat of the ECE prepares documents on various topics to facilitate discussion at these meetings.

The annual, 2-week plenary sessions of the ECE members are meetings of a more general nature, which end with a consensus among them on resolutions and decisions relevant to the ECE's work program for the ensuing year. The West, for the most part, has sought practical work of mutual benefit within, the ECE, taking into consideration balance among all aspects of CSCE. The East, on the other hand, has sought to skew the activities of the ECE to areas of its particular interest through broad, largely symbolic proposals designed to obtain Western concessions in economic cooperation as a way to gain assistance for their ailing economies.

While there are numerous ECE activities relevant to Basket II, one of the more important areas is in the field of trade. During discussions in the Committee on the Development of Trade, the participants note various economic and trade trends over the previous year and comment on the trade policies of the member countries and trade relations between them.

Meetings of the Committee in 1982 and 1983 were fairly confrontational. In 1983, the Committee held Ad Hoc Meetings on Compensation Trade and on Obstacles to Trade, but, in December 1983, it could not agree to a new program of work for 1984. A December 1984 meeting was more business-like, and agreement was reached to hold in 1985 an Ad Hoc Meeting on Industrial Cooperation and a Special Meeting of Experts on Prospects for East-West Trade in the 1980's.[36] Also in 1985, the Committee held a Seminar on East-West Trade Promotion, Marketing and Business Contacts. At the December 1985 meeting of the Committee, agreement was reached to hold a Symposium on East-West Business Opportunities and Trade Prospects, which took place from September 8–11, 1986.

Another area of the CSCE and covered by the ECE is multilateral work in the field of energy. The East has continuously stated its interest in the scheduling of a high-level meeting on energy under the auspices of the ECE. While this has met with Western opposition, lower-level meetings on energy were nevertheless held, such as the Ad Hoc Meetings on the New and Renewable Sources of Energy and on Energy Conservation in 1983. ECE members agreed at the 40th Plenary Session of the ECE in April 1985 to schedule the fifth meeting of the Senior Advisors. The meeting was held in September 1985 and concentrated on the exchange of information on energy plans and production, as well as a discussion of the current energy situation in the ECE region.

CHAPTER FOUR

SCIENCE AND TECHNOLOGY

Introduction

Cooperation and exchanges in science and technology with the Soviet Union and the countries of Eastern Europe date from the 1950's, expanded considerably in the years of détente in the 1970's, declined significantly following the Soviet invasion of Afghanistan in December 1979, and increased somewhat in the past couple of years but not yet to the 1979 level. The US Government supports these programs in part for the scientific benefit gained from them. Also, it is hoped that exchange programs will help break down barriers, lessen distrust, reduce secrecy, and lead toward a more open world. These programs vary in size and scope among the East bloc countries partly because of different rates of scientific development and partly because political relations with the United States are not uniform within the bloc.

Soviet Union

Overview.—US-Soviet cooperation and exchanges in science and technology date back to 1958, when a general education and cultural exchange agreement was signed. The agreement was renewed periodically, but the United States allowed it to expire in 1979 because of the Soviet invasion of Afghanistan. It was renewed in November 1985 at the summit meeting in Geneva. The framework of a general umbrella agreement and 10 specialized agreements, signed at earlier summit meetings in 1972–74, led to a significant increase in cooperative efforts in science and technology in the 1970's. In addition to the scientific benefits they produced, these cooperative efforts provided a means of communicating with an influential stratum of Soviet society.

After the Soviet invasion of Afghanistan in December 1979, the United States reduced funding and other support for scientific and technological exchanges with the Soviet Union. As a result, exchanges of scientists under the 11 agreements declined by 50 percent. Agreements on energy, space, and science and technology were allowed to lapse in 1982 in response to Soviet involvement in the imposition of martial law in Poland in 1981, and discussions on renewal of a transportation agreement were halted by the United States as a result of the Soviet shootdown of a Korean airliner in September 1983. Activity under the remaining seven agreements—environmental protection, public health, agriculture, world ocean, housing, atomic energy, and artificial heart research and development—fell to about 25 percent of the 1979 level by early 1982 and to about 20 percent by late 1983. A privately organized boycott campaign by scientists contributed to this decline. However, some activities were continued, especially in the areas of health, environmental protection, and safety. Moreover, the structure of scientific cooperation was kept intact so that exchange could be expanded when the political situation warranted.

Science and technology exchanges began to revive when President Reagan spoke in June 1984 to the Conference on US-Soviet Exchanges sponsored by the Smithsonian Institution. The President announced a policy of reviving and strengthening activities under the environmental protection, health, agriculture, and housing agreements. This resulted in high-level meetings of the joint committees of agriculture, housing, and environment during 1985 and was accompanied by joint activities at the working scientist level. The world ocean agreement was renewed in July 1985 for an additional 5 years. New joint projects were authorized in September 1985 under the housing agreement. Cooperative programs in environmental protection and research were updated in November 1985, establishing projects for controlling air pollution, enhancing the urban environment, and protecting the marine environment. In December 1985, the atomic energy agreement was extended through June 1988. The summit meeting in November 1985 in Geneva provided further impetus to cooperative activities. It produced a joint statement encouraging greater US-Soviet contacts and exchanges, including those in science and technology.

In addition to the intergovernmental programs, many scientific exchanges took place through direct contracts between Soviet and American academic and scientific institutions. The programs of the National Academy of Sciences (NAS) and the International Research and Exchanges Board, which are funded in part by the US Government, continued, but in 1985 were only about half what they had been in 1979. Contacts were also maintained at international meetings attended by scientists of the two countries. Soviets continued to attend scientific meetings in the United States at the invitation of US institutions. The number of American scientists traveling to the Soviet Union was small, however, because invitations to scientific meetings in the Soviet Union are not routinely extended to foreign scientists. Moreover, the interest of US scientists in such meetings is limited by restrictions on their access to Soviet scientists and laboratories.

Also inhibiting scientific exchanges were Soviet violations of human rights provisions of the Final Act. Nearly 8,000 prominent scientists from 44 countries, including the United States, agreed in mid-1982 to suspend scientific relations with the USSR as a protest against the imprisonment and oppression of Soviet scientists. Perhaps 10 times this number participated in the protest by limiting relations with Soviet scientists without signing the petitions. The protest began in 1980, when Soviet physicist Dr. Andrei Sakharov was banished to Gorky, and continued until the end of the CSCE review meeting in Madrid (Sakharov was allowed to return to Moscow in December 1986).

Many American scientists have been unwilling to participate in scientific exchanges with the Soviet Union and receive Soviet scientists in the United States because of the treatment of Sakharov, the continued imprisonment of other prominent Soviet scientists, and other human rights violations. In 1981, for example, the National Academy of Sciences (NAS) suspended all scientific workshops with the Soviet Academy of Sciences and refused to negotiate a formal renewal of its exchange agreement because of Soviet mistreatment of Sakharov, a foreign associate member of the US Academy.

While the campaign to restrict contacts in protest of human rights abuses has continued, some increase in contacts has occurred recently but has not reached the 1979 level. The increase has arisen from a felt need for dialogue because many scientists believe human rights can be advanced more rapidly through direct contacts. For example, the NAS in April 1986 signed a new 2-year agreement with the Soviet Academy of Sciences, even though Soviet treatment of Sakharov had not improved. Academy officials said they saw no evidence that the boycott was having any beneficial effect, and argued that resumption of relations would enable American scientists to express their views about Sakharov's welfare and other human rights problems more effectively.

The new NAS agreement, like earlier ones, provides for workshops, annual meetings of academy officers, exchange visits by research scientists and academy members, and development of cooperative programs in research. The agreement adds several new features. To guarantee mutual scientific benefit, it stipulates that cooperative programs must be concentrated in fields of major scientific importance in which both countries are world leaders. It provides that all activities will be based on the principles of the Helsinki accords. And it includes short-term visits by an unlimited number of scientists beyond the annual quota of longer term exchanges.

Soviet abuse of psychiatry as a tool to suppress political dissidents was a particularly blatant human rights violation which had an adverse impact on scientific exchanges. Contacts with Soviet psychiatrists were halted when the Soviet National Psychiatric Association withdrew from the World Psychiatric Association in February 1983. The Soviet withdrawal followed moves by American, British, and other national psychiatric associations to suspend the Soviet organization from the world association if it did not cooperate in giving information about psychiatric treatment of political dissidents.

Agriculture.—The agriculture agreement, originally signed in 1973, was renewed in 1978. Activities under the agreement were suspended following the Soviet invasion of Afghanistan in 1979. Nevertheless, the agreement was renewed in 1983 because it differs from the other science and technology agreements in that it contains a trade element. It provides for travel of crop observation teams to enhance US estimates of Soviet agricultural production, and for participation of market development associations in exchanges—both of which give the agreement more than scientific benefit. Despite the renewal of the agreement, activities remained suspended until 1985 because the Soviets insisted on a joint commission meeting involving policy-level US participation, which the United States considered inappropriate given the political atmosphere created by the continued Soviet occupation of Afghanistan.

High-level participation did resume with a meeting in Moscow in June 1985. The meeting established cooperation between US and Soviet organizations on 20 topics during 1985–86, with each country to exchange approximately 11 teams of scientists and technicians. Many topics for cooperation in research were specified. Seminars on production modeling and feed manufacturing are planned. Joint activities in animal husbandry, veterinary service, and quarantine are projected. During Agriculture Secretary Block's visit to the Soviet Union in August 1985, it was agreed to exchange young agricultural specialists. A Soviet team visited the United States in 1986, but a US visit to the USSR was cancelled when Soviet authorities refused to change the venue of the visit away from an area only a few hundred kilometers distance from Chernobyl.

Atomic Energy.—The agreement on peaceful uses of atomic energy, signed in 1973, was renewed in 1985 for another 2 years, extending it through June 1988. Topics covered deal with fusion science and the study of the fundamental properties of matter. At the summit meeting in Geneva in November 1985, President Reagan and Chairman Gorbachev advocated wider international cooperation in development of this energy source. As a result of the accident at the Soviet nuclear reactor at Chernobyl in April 1986, discussions of reactor safety under this agreement have taken on greater urgency. In August 1986 the United States and the Soviet Union signed a nuclear safety and research protocol permitting reciprocal on-site inspections of selected atomic research stations. Scientists will be permitted to inspect two reactors from each country at unspecified dates in 1987. The protocol also calls for increased cooperation in development of breeder and liquid metal moderated reactors and other areas of nuclear study. Experts from each country are to hold four meetings in 1987 to discuss areas of specialization, including a review of the design and safety aspects of fast breeder research and other types of nuclear reactors.

Environmental Protection.—Activity under the environment agreement, which was signed in 1972, decreased in the years following the Soviet invasion of Afghanistan in 1979. It was reinvigorated in 1984, however. Cooperative research programs were updated. In 1985, high-level contact between the administrator of the Environmental Protection Agency and his counterpart in the Soviet Union was established. The two sides carried out nearly 40 man-months of exchange visits on such topics as earthquake prediction, marine mammal ecology, rare and endangered plants, wastewater treatment, air pollution modeling and measurement methodology, water quality research, and climatic effects of atmospheric pollution. The US side submitted several proposals for new joint projects for the joint committee meeting in Moscow in November 1985. This was the first such meeting in nearly 6 years.

Medical Science and Public Health and Artificial Heart Research and Development.—Cooperation continued under these two health agreements, which were signed in 1972 and 1974, but at reduced levels after the Soviet invasion of Afghanistan in 1979. No high-level meeting has taken place since 1979, by decision of the US Government. At the working level, collaborative research and exchange proceeded in several areas of cooperation, including cardiovascular diseases such as hypertension, cancer treatment and prevention, biological effects of microwave and other types of radiation, respiratory diseases, and viral hepatitis. Under the two health agreements, about 20 US scientists and 30 Soviet scientists participated in exchange visits.

Alaska's senators and Soviet health and foreign ministry officials signed an agreement in August 1986 for an exchange of health information between Alaska and Siberia. The agreement provides for an exchange of information, specialists and data from research projects as well as conferences and lectures. Alaska and Siberia have similar climatic conditions, population groups, and geographical features. Details of the agreement will be worked out at the next meeting of the joint health agreement in April 1987.

World Ocean.—The world ocean agreement, signed in 1974 and extended in 1978 and 1981, was again renewed in 1985 for an additional 3 years. Under the agreement, studies were performed on air-sea interaction, biological productivity and biochemistry, ocean dynamics, standardization of oceanographic instruments and methods, and deep-sea drilling.

Housing and Other Construction.—Activity under the housing agreement, which was signed in 1974, continued after the Soviet invasion of Afghanistan in 1979, but at a reduced level. In June 1984, the United States proposed reinvigoration of the agreement. In September 1985, new joint projects were agreed upon in building design and materials, construction technology, construction in seismic zones and permafrost areas, and urban planning.

Other.—In October 1984, President Reagan signed into law a joint resolution of Congress in support of renewing cooperation with the Soviet Union in space. A congressional delegation visited the Soviet Union in October 1985 to explore prospects for renewed cooperation in space. A number of specific proposals have since been put forward for joint projects, including a proposed exploration mission to Mars. The Soviet Union has shown some willingness to take steps to reinvigorate the cooled relationship in this field.

The Soviet Union, along with the United States and other members of the United Nations Committee on the Peaceful Uses of Outer Space, has cooperated in dealing with such space related matters as remote sensing, regulating use of nuclear power sources in space vehicles, use of the geostationary orbit, and the definition and delimitation of inner and outer space. However, in recent years the Soviet Union contributed to a serious deterioration in the committee's scientific and technical focus and an increasing tendency for the Committee to involve itself in disarmament and other matters outside its mandate. The Soviet Union has been attempting to give the Committee a role on questions of the militarization of space.

The Soviet Union, in cooperation with the National Oceanographical and Atmospheric Administration of the United States, equips its polar-orbiting satellites with instrumentation which is interoperable with US environmental satellites in the polar area. The Soviet Union also cooperates with the United States and other countries to promote the development of a global meteorological observing system.

Soviet maritime authorities met with the US Coast Guard in January 1985 to exchange information about search and rescue services. Agreement was reached to establish a communications link. Radio navigation specialists from the two countries met in March 1985 and discussed technical problems regarding interference affecting and operation of the two systems. Agreement was reached to coordinate future efforts to minimize system interference. These discussions were a significant step forward in improving safety of life at sea.

A US-Soviet agreement to improve the safety of civil airliners flying the North Pacific routes from Anchorage to Tokyo was announced at the Reagan-Gorbachev summit meeting in Geneva in November 1985. The agreement was in response to the Soviet shootdown of an off-course Korean airliner in 1983 in which all 269 people aboard were killed. The agreement provides for a continuous direct voice communications link with the three international air traffic control centers covering the North Pacific—Anchorage, Tokyo, and Khabarovsk. In addition, civil aircraft for the first time will be allowed to land in Soviet territory in emergency situations.

The National Science Foundation, with the assistance of the American Chemical Society, has begun negotiations on a joint seminar program in catalysis with the Soviet Union. Various multilateral scientific projects have Soviet and American participants.

The United States in late 1982 discontinued official membership in the International Institute for Applied Systems Analysis (IIASA), an East-West think tank in Vienna with membership of the USSR and 15 other countries. IIASA studies long-term problems with global applications such as energy, food, and water resources. Substantive benefits to the United States were minimal, and a Soviet administrator was identified as an intelligence agent. US membership was continued on a private basis, however, with private funding. The national security objection is now no longer an active concern, and some official funds are being used on a contract basis for specific IIASA projects.

Significant private agreements have been reached with the Soviet Union in addition to the large program of the National Academy of Sciences. One includes a US doctor who assisted in treatment of the Soviet victims of the April 1986 nuclear reactor accident at Chernobyl and is continuing to monitor the health of persons exposed to radiation from the Chernobyl reactor. In a June 1986 agreement with the USSR Academy of Medical Sciences, he agreed to participate in a joint US-Soviet study of the medical and biological consequences of the accident. The study will examine the cases of up to 130,000 persons and provide for regular medical examinations over a 30-year period. In another agreement, a group of US seismologists agreed to install devices in the Soviet Union to measure seismic activity in areas near a Soviet nuclear test site. In return, a team of Soviet scientists will set up equipment in Nevada to monitor US underground nuclear testing and in another agreement, the University of Alaska and the Soviets will study how northern people adapt to cold. Such private agreements are becoming an important and growing part of US-USSR relations.

OVERVIEW OF EASTERN EUROPE

The United States has formal cooperation and exchanges agreements with Bulgaria, Czechoslovakia, Hungary, and Romania.

These agreements contain provisions for cooperation and exchange in science and technology. A science agreement with Poland was permitted to expire in 1981 and has not been renewed. There is no agreement with East Germany. The agreements include 2-year programs which are periodically renewed. Under these basic documents, agency-to-agency memoranda of understanding provide more detailed procedures governing relationships between US technical agencies and their counterparts in Eastern Europe. Private organizations and individual scientists also have contacts with some East European counterparts. These programs save US research scientists time and money that otherwise would be required to duplicate this research on their own.

Bulgaria

The cooperation and exchanges agreement, which includes science and technology, was signed in 1977. Two-year programs under the agreement were renewed again in 1984 and 1986.

Specialists from the Soil Conservation Service visited Bulgaria in 1985, sharing knowledge about conservation, water shortage, soil erosion, and problems of improper land use. An exchange program in agriculture—which includes such projects as dairy cattle housing, swine production, and sheep genetics and breeding—gave the United States scientific benefits and access to livestock operations in Bulgaria. US scientists benefited also from Bulgarian research on thin films and membrane deformation.

The National Science Foundation continued a modest level of cooperative research activity with Bulgaria. One project involves research on a key question for the oil industry: utilization of enhanced oil recovery techniques from the ground using either water or gas. American scientists are using an oil recovery technique developed in Bulgaria.

Scientists from Bulgaria conducted research in the United States in such areas as computers and biochemistry, but reluctance to open their facilities to foreigners made the Bulgarians less willing to receive research scientists in return. American exchange visitors who were accepted were usually granted only limited access to Bulgarian facilities.

Czechoslovakia

The United States and Czechoslovakia signed a general bilateral cooperation agreement—their first—in April 1986. The agreement contains a section providing for exchanges and cooperation also in science and technology. It gives official encouragement to the agreement between the National Academy of Sciences and the Czechoslovak Academy of Sciences, which dates from 1969, and it encourages the conclusion of an agreement with the US National Science Foundation. The 2-year program under the bilateral agreement encourages cooperation in health and medical fields through exchange visits and joint research projects, exchange of publications, and notice of congresses and symposia on these subjects.

GDR

No exchanges agreement exists between East Germany and the United States. However, the National Science Foundation has been participating in intergovernmental negotiations on the establishment of formal cooperative programs in the field of science and technology. In 1985, East Germany acknowledged for the first time that serious pollution problems exist. Plans were made to import control equipment for sulphur dioxide and other pollutants.

Hungary

A cooperation and exchanges agreement, which includes science and technology, was signed in 1977. Two-year implementing programs under the agreement were renewed in 1984 and 1986.

Cooperation continued in various areas of basic research in the natural and life sciences as well as in transportation, which includes rail, highway, and bridge design and construction. Under the agreement and its implementing programs, detailed programs exist between specific technical agencies. For example, the Department of Transportation had technical discussions and information exchanges with the Hungarian Ministry of Transport on bridge design and construction, technical studies for improvements in safety at highway rail crossings, and exchanges of research findings on railroad track buckling. Other major participants in cooperative programs were the National Science Foundation and the US Geological Survey. Valuable data were obtained from the Hungarian counterparts. The US Department of Agriculture also has an active exchange program. American specialists from the Soil Conservation Service visited Hungary in 1985, and the SCS received its Hungarian counterparts on a return visit. These specialists shared knowledge about conservation, water shortage soil erosion, and problems of improper land use. In 1986, NASA officials visited Hungary, and US astronauts participated in a congress of the Association of Space Explorers. Another positive development has been the publication in 1985 of *Tudomany* (Science), a monthly reprint, under license, of articles from *Scientific American*.

Poland

The proposed renewal of the science and technology agreement with Poland remained in abeyance pending an improvement in bilateral relations. The US Government permitted the previous agreement to expire at the end of 1981 because of the imposition of martial law in December that year. US scientific exchanges with Poland, which had been the largest and most comprehensive of any country in Eastern Europe, suffered a severe setback with the imposition of martial law. Existing projects were permitted to continue to completion, but international travel under these projects was greatly reduced by restrictions on foreign travel by the Polish military government and by the reluctance of US scientists to visit Poland while martial law continued.

In the absence of a formal agreement, the level of scientific exchanges did not increase significantly after martial law was lifted in July 1983. The amnesty of political prisoners in August 1984 brought some improvement in US-Polish relations, but it was not sufficient to restore the formal progam of scientific exchanges. Funds appropriated in 1981 for the agreement with Poland were transferred in 1985 to a program with Yugoslavia. The US prohibition against the use of zlotys for new science and technology projects continued. Nevertheless, some contacts are being maintained with the scientific communities of Poland through nongovernmental channels, and some cooperative activities are being continued. Gradual improvements in bilateral relations will likely increase the level of scientific contacts in coming years.

Romania

The cooperation and exchanges agreement, which includes science and technology, was signed in 1974. The latest 2-year program of cooperation was signed in 1983 and then extended for 1 year to the end of 1986.

Exchanges of scientists—in such areas as medicine, biology, geology, seismology, mathematics, chemistry, and physics—is small, with an exchange of about a dozen scientists and about six conferences annually. US scientists have benefited from Romanian research in these fields. The Romanian Government recently stressed the country's need for expanded efforts to obtain advanced technology from abroad. While this led to greater emphasis on scientific and technological exchanges, it was at the expense of exchanges in other areas, primarily the humanities.

Romanian restrictions on travel abroad severely hampered scientific cooperation and exchanges when they were imposed in 1982. Many Romanian scientists cancelled their planned trips to the United States for joint research programs, resulting in abandonment of projects. As a result, the once active exchange program with Romania remains small. During the course of 1986, exchange visits have occurred at only half the rate for 1985. In the field of cancer research, the US has notified the Romanian Government of its intention to terminate an agreement because of lack of activity.

CHAPTER FIVE

ENVIRONMENTAL COOPERATION

Introduction

In a separate section of Basket II of the Helsinki Final Act, the participating States endorsed close international cooperation in "the protection and improvement of the environment, as well as in the protection of nature and the rational use of its resources." The signatories declared their intention to pursue "every suitable opportunity to cooperate" in the control of air and water pollution, fresh water utilization and the protection of the marine environment. Guarantees of protection also extended to the utilization of land and soils, nature conservation and nature reserves, and the improvement of environmental conditions in areas of human settlement. Furthermore, fundamental research, monitoring, forecasting and assessment of environmental changes was encouraged, as was the use of legal and administrative measures to ensure implementation of these provisions. The signatory states pledged their support for cooperation on a bilateral and multilateral basis through an array of methods, including the exchange of information and specialists, the organization of symposia and joint projects, as well as consultations with other nations.

Environmental developments

In recent years, environmental problems have become an increasing concern of the CSCE signatories. This is due to the characteristics of the participating States and the European Continent itself. The participating States collectively represent a very large percentage of the world's energy consumption and industrial production, making them major polluters. In addition, as many of the European participating States are of a small or medium size and share the same continent, environmental problems have effects across boundaries and are, therefore, increasingly an international concern.[37] Furthermore, some of the participating States are among the world leaders in developing environment-saving technologies and in implementing environmental protection measures. While this has resulted in a slowdown or even a reversal in the amount of damage to the environment in these countries, it has also made them even more sensitive to the damage caused by the lack of equally protective measures in neighboring or nearby countries. It has also made those continuing to experience environmental deterioration seek the assistance of those with the technology and experience to help, making the desire for multilateral efforts in the field of environmental protection all the greater.

While numerous environmental problems exist throughout Europe, concerns over damage to the forests, rivers, lakes and health of the population have taken on East-West dimensions in the last few years. All East European countries are suffering harmful consequences from environmental pollution, including public health hazards, the degradation of natural resources and the endangerment of plant and animal species.[38] The problems in Czechoslovakia are probably the most well-known, due both to their extent and to the proximity of Czechoslovakia to West European countries. This is especially true regarding air pollution. As Czechoslovakia concentrates on heavy manufacturing that uses low-quality domestic coal as its main power source, its sulfur dioxide emissions are among the world's highest. In addition, it is believed that approximately one-quarter of the Czechoslovakia's major river length is either incapable of sustaining fish or containing edible fish, and the pollution of rivers and other water supplies by fertilizers, pesticides and animal wastes is expected to double by the end of the century.

The GDR also uses much domestic brown coal for its energy supply, despite the fact that there are almost no desulphurization plants in GDR factories. Since the 1970's the GDR has had the highest sulphur dioxide emissions per square kilometer in all of Europe. In Hungary, a primary environmental concern is that of soil erosion in hilly areas. Sulfur dioxide emissions and other air pollutants have affected at least 10% of the country's forests.

Poland, along with the GDR and Czechoslovakia, is one of the more industrialized countries of Eastern Europe and similarly suffers from both air and water pollution. Approximately 80% of Poland's energy comes from domestic coal, resulting in extremely high sulphur dioxide emissions, particularly in the southern half of the country.

While less developed industrially, Romania is beginning to experience pollution problems on the scale of Czechoslovakia and the GDR Already high on the list of per capita sulphur dioxide emissions, it has increased the amount of such emissions since the early 1970's at a faster rate than any other country in Europe. The levels of lead and sulfurous anhydride pollution in some industrial areas have led to lead poisoning and other health problems among the population. The delta of Danube River, an area considered ecologically unique, is suffering from industrial dumping.

There have been numerous reports of various environmental problems in the Soviet Union. Among them are reports of polluted rivers, lakes and man-made reservoirs, some beyond control. So much water from the Aral Sea has been drained for irrigation use, for example, that this large lake has shrunk significantly from its original size.[39] Concern has also been expressed over the destruction of Lake Ladoga and Lake Issyk-Kul' by pollution. The Kara-Bogaz Gol, a gulf on the eastern side of the Caspian Sea, faced a different problem. Because it drains water from the Caspian, a dam was built to prevent water loss from the sea, save fisheries and allow more water to be taken from the Caspian for irrigation purposes. Instead, it created an environmental disaster as the gulf quickly dried up, almost destroying the chemical industry located along its shores and blowing harmful salts from the bed of the gulf over farmland in central Asia. In September 1984, an aqueduct was opened to again drain water from the Caspian in the Kara-Bogaz Gol in attempt to restore the situation.[40] A more publicized disaster was a massive brine spill from a fertilizer plant in September 1983 which destroyed plant and animal life and interrupted fresh water supplies over a 300-mile stretch of the Dniester River in Ukraine.

Much of damage caused by pollution, both in the East and the West, is of a transboundary nature. For example, most of Hungary's surface water originates in other countries and 60% of the sulfur dioxide pollution has a transnational character. Polish officials claim that 50–60% of the pollution landing on Polish soil comes from the industries of other countries.[41] The GDR is a major source of this pollution as well as that which causes the many "smog alarms" in West Berlin. In June 1982, an FRG report estimated that 22.4% of the pine forests in Bavaria were damaged by pollution originating in Czechoslovakia. Austria claims that as much as three-fourths of its sulfur dioxide pollution comes from neighboring countries.[42] In 1984, Soviet scientists detected acid rain in northern areas of the USSR which was traced via weather patterns to central and western Europe.[43] One Soviet official stated in 1984 that the USSR receives 5 to 10 times more sulfur dioxide from other countries than it sends them.[44] The Danube River is polluted by industries in the FRG, Austria, Czechoslovakia, Hungary, Yugoslavia, Bulgaria and Romania before it empties into the Black Sea, which also receives pollution from the Soviet Union.

It is clear that there are several factors involved in the creation of the environmental problems in Eastern Europe and the Soviet Union, among them geographic and economic. While such factors are common to environmental problems existing in Western Europe as well, one deep-rooted problem common among the East European countries and the USSR is the the lack of open discussion of the environment. This problem has two aspects to it. First, the governments of the countries of Eastern Europe and the Soviet Union, who act as both the polluters and the "protectors" of the environment, have generally been highly restrictive in releasing information on ecological disasters, although, in several states, authorities have tended to be more forthcoming than in the past. Second, while independent environmental concerns are expressed by unofficial, dissenting groups, their activities usually are not tolerated by the authorities, especially when it appears that they may gain popular support among the general population.[45]

There are various official groups working on environmental concerns in the Soviet Union and the countries of Eastern Europe. While it is not clear how much popular backing they may have, it is believed that they serve a largely supportive role for the government by organizing ecologically concerned members of the public to support official policy and participating in harmless activities, such as recycling drives, tree plantings and city clean-up campaigns. They rarely, if ever, call attention to the environmental implications of governmental policies.

The scientific communities in some of the East European countries have been vocal on environmental issues in their respective countries. Scientists in Poland have been particularly active in supporting increased consideration of the effects of economic policies on the environment. Soviet authorities, on the other hand, allow only limited discussion, and some scientists have resorted to expressing their concerns anonymously. For example, an open letter that reached the West from a group of Estonian scientists focuses on the Muuga Bay Harbor project near Talinn, where, according to the letter, Soviet authorities plan to build port facilities for oil shipments in addition to those for grain and dry goods already under construction. The letter cites authorities as stating that potential ecological problems are "surmountable" even though a number of fears about ecological damage resulting from this project have surfaced in recent years. The letter also discussed polluted water supplies in Estonia and asserted that new censorship rules for articles in the official press on the environment have been imposed in January 1986, making it almost impossible to discuss publicly the environmental consequences of many projects in the republic.[46]

Among the first of the unofficial groups to focus on environmental concerns was the Polish Ecology Club, founded by members of the scientific and cultural community in Krakow. Prior to the declaration of martial law, this group, which spread into several branches with thousands of members, was very active and, at times, successful in influencing local authorities and officials in Warsaw to take their environmental concerns into consideration. Following the imposition of martial law, however, the group was forced to cease its activities in the open and has since worked underground.

In Czechoslovakia, Charter 77 has been an unofficial proponent of environmental protection. In July 1983, for example, it sent a letter to local authorities in northern Bohemia, one of the most polluted regions of the country, calling attention to significant environmental damage despite a government plan implemented to improve the situation. In early 1984, Charter 77 obtained and circulated a report written by the Czechoslovak Academy of Sciences that reached such alarming conclusions about pollution in Czechoslovakia that the government decided to suppress it.

Since the 1970's, the Protestant Church has been the center for expressions of discontent about the environment in the GDR There have been occasional public protests over environmental problems. On June 5, 1983 (the international day of the environment), for example, approximately 200 residents of the city of Halle attempted to protest the Buna Chemical Works but were prevented from doing so by the fire department, which sprayed them with foam. They were subsequently arrested and fined. Despite incidents such as this, churches have continued to organize ecology discussion groups and discuss environmental issues in their widely circulated press.

In Hungary, a group called *Duna Kor* (Danube Circle), is primarily concerned with the construction of the joint Hungarian-Czechoslovak Gabcikovo-Nagymaros hydroelectric dam project on the Danube River, which, they claim, will have significant ecological consequences for Hungary. Members of this group have had their views and protests circulated in *samizdat* journals. In mid-1984, it organized a petition calling for the cancellation of the dam, which contained over 4,000 signatures. On February 8, 1986, an "environmental walk" in Budapest, consisting primarily of Austrians, was attempted but dispersed by the police.

Multilateral Cooperation

Stemming from a Soviet proposal for pan-European conferences on energy, transportation, and the environment, a high-level meeting on the environment was held under the auspices of the United Nations Economic Commission for Europe (ECE) in November 1979. At the meeting, the multilateral Convention on Long-Range Transboundary Air Pollution and an accompanying Declaration on Low and Nonwaste Technology and Reutilization and Recycling of Wastes were signed, representing examples of cooperation in the area of pollution control directly encouraged by the Helsinki Final Act. The Convention contains fundamental principles for combatting air pollution, while providing for extensive cooperation in the exchange of information, research, development and implementation of the Cooperative Programme for the Monitoring and Evaluation of the Long-Range Transmission of Air Pollutants in Europe (EMEP). An outgrowth of this cooperation is the compilation of a compendium on low and nonwaste technologies. In the Madrid Concluding Document, the participating States welcome these efforts and gave priority to their effective implementation.

The Convention formally came into force in March 1983. At the second session of the Executive Body to the Convention, which met in 1984, a protocol on the long-term financing of EMEP was adopted. The third session, which took place in Helsinki, Finland in July 1985, adopted a protocol on the Reduction of Sulphur Dioxide Emissions or their Transboundary Fluxes, which called for the reduction of such emissions by 30%, using 1980 as a base year.[47] It also established a Working Group on Nitrogen Oxides to prepare measures and proposals to reduce nitrogen oxide emissions or their transboundary fluxes.

In line with these efforts was the Multilateral Conference on the Causes and Prevention of Damage to Forests and Water by Air Pollution in Europe, held in Munich from June 24 to 27, 1984, which was attended by 31 nations. All recognized the need for effectively reducing sulfur dioxide and nitrogen oxide emissions as well as the amount of harmful substances in automobile exhaust fumes. The meeting gave additional stimulus to the work of the executive body of the Convention on Long-Range Transboundary Air Pollution and to other activities of the ECE.

The ECE has sponsored many other activities in recent years. Progress continues under the EMEP, for example, in assembling the required data base from a network of 88 monitoring stations in 23 countries. Other cooperative programmes assessing the impact of air pollution on forests, historic and cultural monuments, and on the acidification of rivers and lakes have been launched. In addition, the senior advisors to ECE governments on environmental problems has conducted reviews of environmental trends and policies in member countries.

Other ECE efforts in recent years include the October 1984 Seminar on Cooperation in the Field of Transboundary Waters, held in Dusseldorf, FRG In August 1986, the ECE sponsored a seminar in Nurmes, Finland, on the protection of the flora, fauna and their habitats in the ECE region.[48] In addition, there has been significant activity in recent years under the auspices of the United Nations Environmental Program (UNEP). In 1986, for example, a convention was signed for the protection of the ozone layer, which has been followed by efforts to control the usage of chlorofluorocarbons which cause damage to the ozone layer.

Bilateral Efforts

The primary bilateral US effort in environmental cooperation with the East bloc is with the Soviet Union under the terms of the 1972 US-USSR Agreement on Cooperation in the Field of Environmental Protection. Of the 11 bilateral scientific cooperation agreements signed with the Soviet Union in the 1970's, this agreement has proven to be among the most productive.

The agreement established a joint committee, comprised of representatives from participating organizations on each side, which reviews recent activities and plans future cooperation. The joint committee is cochaired by the administrator of the US Environmental Protection Agency and the chairman of the State Committee for Hydrometeorology and Environmental Control. In addition to the EPA and the State Committee, several other US Government agencies and State universities on the one hand and about 20 Soviet ministries, state committees and institutes of the USSR Academy of Sciences on the other, participate in the program.

The joint committee's activities ran smoothly during most of the 1970's, exchanging about 300 specialists each year, but, with the Soviet invasion of Afghanistan in December 1979, the level immediately fell to 140 in 1980 and was only 75 in 1985. In November 1985, however, the first joint committee meeting in 6 years was held on the eve of the Geneva summit which allowed both sides to cancel older projects and to set up different ones in new areas.

Some problems still exist, however, such as technical interpreter support services, timely visa issuance and funding difficulties. On several occasions over the past few years, laboratory notes, reprints of Soviet articles and other materials legitimately obtained in the USSR have been confiscated from departing American scientists by Soviet customs officials. In 1984, an Interior Department employee was denied a Soviet visa and slandered in the Soviet newspaper *Izvesitya.*

The current agreement includes 38 projects, ranging from air and water pollution control, to plant and animal ecology and zoo exchanges, to the climatic effects of environmental changes and the prediction of earthquakes. Specific studies sometimes lead to joint symposia or published reports. In the more than 13 years since the agreement came into force, over 2,000 specialists have visited factories, laboratories and field sites in both the United States and the USSR.

Cooperative efforts between the United States and some of the East European countries have developed in recent years. For example, the US Environmental Protection Agency is currently working to resume bilateral cooperation with Poland along the lines of an earlier agreement which lapsed in 1982. This initiative was advanced by a November 1986 EPA delegation visit to Poland, which included representatives of American industrial associations involved in the manufacture and sales of pollution control technology.

Similar initiatives have been made toward increased cooperation with Hungary as well. The aforementioned EPA delegation visited Budapest in November 1986 to discuss possibilities for increased cooperation. The United States has also proposed to include environmental topics under the 1986 US-Czechoslovak General Exchanges Agreement, but there has been no response to these proposals to date.

The Impact of Chernobyl

Introduction.—The nuclear accident on April 26, 1986, at the Chernobyl nuclear station in the Soviet Union is the most serious to occur at any nuclear powerplant. It caused the largest number of casualties, released the greatest amount of radiation, and generated serious international repercussions.

The Basket II provisions of the Helsinki Final Act and the Madrid Concluding Document on the environment do not discuss nuclear safety or international obligations regarding nuclear accidents. Nevertheless, certain provisions are relevant. The participating States did acknowledge that each of them, "in accordance with the principles of international law, ought to ensure, in a spirit of cooperation, that activities carried out on its territory do not cause degradation of the environment in another State or in areas lying beyond the limits of national jurisdication." The signatories also agreed that environmental cooperation will be implemented through "consultations on various aspects of environmental protection, as agreed upon among countries concerned, especially in connection with problems which could have international consequences."

Regardless of its relevance to Basket II provisions, the accident had an immediate and dramatic effect on all of Europe, demonstrating the importance of European cooperation in solving regional environmental problems as expressed in Principle IX of the Final Act. In addition, the accident's effects reached beyond the issue of cooperation among states. The human dimension of the Chernobyl accident was tremendous. Many facets of this dimension are dealt with in the Helsinki Final Act, including the free flow of information and the expansion of human contacts. The fact that the Soviet Union denies its citizens the right to know and act upon their rights is also relevant. While it would be wrong to state that Soviet officialdom is not concerned with safety, the suppression of independent expressions and grievances regarding nuclear energy and environmental policies and practices can result, particularly in the long-run, in less emphasis on safety aspects of the nuclear energy industry.

While the Soviet Union is alone to blame for failing to announce the accident for almost 3 days, and then only with a minimum amount of information, the Soviet Government's response is not the only one that needs to be considered. With a few exceptions, the governments of the East European states generally minimalized the dangers posed by the accident and gave little information on the accident and its potential effects. The governments of these countries would often respond by repeating Soviet statements instead of providing detailed information on the situation and what measures the public should take. Even in some Western states—

where there is a freer flow of information and increased sensitivity to public safety by officials answerable to the public—there was considerable confusion and little knowledge of how serious the problem was, leading at times to insufficient or delayed responses.

Finally, the response in all countries made evident the lack of international cooperation to establish early-warning measures to deal with an accident with transboundary effects, to create adequate radiation-monitoring networks with international access, and to respond quickly in cases when safety measures do not prevent an accident from taking place. It also highlighted the possible need for upgrading of existing safety standards for nuclear power stations.

The lack of information provided by the Soviet Union has led to considerable speculation on the principal causes of the accident and the actual sequence of events that lead to it. The environmental and health effects of Chernobyl and the adequacy of the Soviet. East European and international responses have been greatly debated as well. Official Soviet, *samizdat* and Western sources frequently contradict each other in the information they provide and frequently raise more questions than they answer. Many of the facts cannot be documented, because they represent reports from unknown witnesses, estimates based on previous experiences and scientific research, or accounts from Soviet authorities who are unwilling to elaborate. Much of the story of the Chernobyl accident, therefore, is based on allegations, claims and reports not necessarily been verified.

Background on the Chernobyl Plant.—The Chernobyl nuclear power station, consisting of four units, is located on the Pripyat River in Ukraine. Commissioned in 1971 and operational in 1977, the Chernobyl plant was the largest in Ukraine and the fourth largest in the USSR. By 1988, two additional units were to be added to the plant to make it the largest Soviet nuclear power station. It is also one of three reactors in Ukraine that is part of the interconnecting energy grid with the East European countries.

The four units at Chernobyl are graphite-moderated, light-water-cooled pressure-tube reactors that are similar to the world's first nuclear powerplant in Obninsk, USSR, which came into operation in 1954. This is frequently referred to as an "RBMK" reactor, from its Russian initials. Most Western powerplants differ fundamentally from this type in that they utilize water both as a coolant and moderator.

Graphite-moderated plants have several advantages over a water-moderated design. They can produce weapons-grade plutonium in addition to energy for public use and do not require the manufacture of a costly pressure vessel to contain the entire reactor core. Moreover, they do not need to be shutdown for refueling or for attending too many operational problems. At the same time, they have several disadvantages. They contain more combustible material than water-moderated reactors and have an inherent danger of producing hydrogen when a leak brings hot steam in contact with graphite and zirconium-clad fuel assemblies. They require expensive pressure tubes that are subject to multiple small-scale failures and are vulnerable to interchannel power oscillations that are hard to control. In addition, graphite-moderated reactors have what is called a "positive void coefficient of reactivity," making it relatively easy to create a "runaway" condition in the reactor. In water-moderated reactors, the loss of cooling water is paralleled by a decrease in generation; in graphite-moderated reactors similar to Chernobyl, the loss of cooling water is paralleled by an increase in generation. This characteristic of the Chernobyl unit was an important factor as the accident developed.[49]

The absence of a containment building enclosing the whole reactor is often cited as the biggest safety shortcoming of this and some other Soviet reactors. Despite some Soviet claims that the explosions would have ruptured containment vessels anyway (a statement which has met with Western skepticism), the lack of such a vessel certainly made the widespread effects of the Chernobyl accident much more likely.

The accident at Chernobyl comes at a time when the USSR is in the midst of a highly ambitious program to increase the share of nuclear power in total energy production from its current level of about 11% to 20% by 1990. The nuclear plants are frequently located near population centers so that the steam they create can be used for providing heat as well for generating electricity. Greater use of nuclear energy permits the export of more petroleum and natural gas, which make up as much as three-fourths of Soviet hard-currency earnings. The export of nuclear energy to the East European nations also can help to maintain the energy interdependence of CMEA partners.

The Soviet drive to expand nuclear power has led to considerable strains in the industry as various plants race each other to increase output. The Ukrainian newspaper *Radyanska Ukraina,* for example, reported on December 29, 1985, that the Chernobyl facility was "leading the field" to become the largest nuclear powerplant in the Soviet Union. In constructing the fifth unit at the Chernobyl, the completion date was suddenly moved forward 1 year, catching the project coordinators and construction workers unprepared. To meet the demand for labor, according to the Ukrainian Komsomol newspaper *Komsomolskoye Znamia* in the summer of 1985, "bands of students" were sent to several plants in Ukraine, including Chernobyl, to assist in construction, and Komsomol youth brigades were reportedly working at 50% more than the normal rate at Chernobyl at the end of 1985.

While all Soviet nuclear powerplants appear to be suffering from a shortage of equipment and qualified labor, a poor transportation network, and a lack of medical and commercial services as well as recreational facilities for workers, the problem at Chernobyl seems to have been more profound. In the paper *Literaturna Ukraina* on March 27, 1986, almost exactly 1 month before the accident took place, these problems and others—particularly the low morale of the workers, less than adequate safety standards and even a "state of helplessness"—were reported at Chernobyl.

At the same time, the actual construction of the Chernobyl unit where the accident occurred does not appear to have been a factor in the accident. Experts state that the problem lies in the design of the reactor—such as the lack of a containment vessel and the positive void coefficient of reactivity—and the "human factor." The supply of qualified technicians in the Soviet Union has not kept pace with the growth of the Soviet nuclear power industry.[50] This problem is compounded by the fact that, when the first Soviet nuclear powerplants began operation in the 1950's, operators of these plants were given and still have considerable ability to override certain automatic safety systems in the event of an emergency. Although computers have become more sophisticated over the decades, they have not yet taken over many of the responsibilities for the plant safety from the operators.

The Accident.—Chernobyl No. 4, the unit in which the accident occurred, began operating in December 1983 and ran smoothly for over 2 years when it was scheduled to shutdown for maintenance work in April 1986. According to Soviet officials explaining the accident, the fact that the unit had operated without any problems since it came into operation may have been a cause for worker complacency toward safety measures. At the time of the accident, there were 176 operators and technicians at the Chernobyl station. An additional 268 workers were doing construction work on the site.[51]

As the unit was being shutdown, an experiment involving one of the turbogenerators (No. 8) was to be conducted to see if it could maintain, with the residual energy produced by the momentum of the spinning turbine, the operation of the reactor's internal support mechanisms in the event of a loss of energy. Previous tests similar to this one are said to have been carried out at the Chernobyl plant. According to the Soviet report submitted to the IAEA in August 1986, the working program for the test was not properly prepared and approved. In particular, the section on safety measures was written in a "purely formalistic" fashion. Andronik Petrosyants, head of the State Committee for the Utilization of Atomic Energy, said that the test was not discussed in advance with the plant's chief engineer or with the "scientific leadership responsible for nuclear safety who were always present at Chernobyl."

To begin the test, the operators first cutdown the unit's power to 25% of its normal operating level. The reactor's emergency cooling system was then shutoff at 2:00 p.m. on April 25, in accordance with the requirements of the test. In the meantime, however, the unit was not shutdown as scheduled, because a dispatcher at a power-distribution station in Kiev requested a delay in the shutdown in order to obtain extra electricity. It therefore continued to operate under these conditions for nearly 12 hours, until 1:23 a.m., April 26, when the accident occurred. Soviet officials stress that this was completely in contravention of established safety regulations.

Following the delay in the shutdown, the operators committed five additional errors as they resumed the test and attempted to finish it as quickly as possible. They decided to block the signal that would have shutdown the reactor unit automatically when the turbines were turned off, apparently believing that they might have had to repeat the test. They increased the waterflow through the core of the reactor by turning on two standby pumps in addition to the six already working. The purpose of this action was to make additional steam to power the turbines, but it had the effect of lowering the water pressure in the coolant circuit, making it easier to boil. To prevent an automatic shutdown from the high rate of waterflow created by this action, an emergency signal attached to monitors in the "steam drum" was shutoff. In the meantime, however, several factors made the reaction level drop to about 7% capacity, which also threatened to shutdown the reactor. In reaction, the automatic safety system on some of the control rods was overridden so as to prevent the unit from shutting down at that low level. In addition, the operators tried to increase the reaction level by pulling out all but 6 to 8 of the 30 control rods needed, out of a total of 211, to ensure the safety of the reactor unit.

Had any one of these five errors not been made, the accident would have been avoided, and had the emergency cooling system not been turned off, it would has been possible to "localize" the accident. Due to an "inadequate understanding on the part of the personnel of the features" of the nuclear plant and a "loss of a sense of danger," according to the Soviet report to the IAEA, the operators did not recognize that they "were introducing disturbances practically continuously" and went on with the test. The valves that release the steam were closed, the turbine disconnected, and the extra water used to replace that which turned into steam was shutoff. With the removal of safety systems that would have dampened or shutdown the unit, the reaction level suddenly came back at 1:23 a.m., jumping from 7% to 50% capacity in a matter of seconds. As it did, the core grew significantly hotter, turning the water in the core into high-pressure steam. Since this steam was not being replaced by additional water, the reactor grew hotter, creating more high-pressure steam and causing the reactor's power to surge out of control. The plant operators, who suddenly realized that an immediate shutdown was necessary, attempted to insert control rods to slow the reaction, but the rods stopped while only partway into the core. At the same time, the pressure of the steam increased beyond the reactor tubes' limits, causing a massive steam explosion which blew off the roof over the reactor and knocked down the heavy crane on top of the reactor, exposing additional uranium fuel rods and large parts of the graphite core to the atmosphere.

In addition to damaging the reactor core as it exploded, the steam reacted with the zirconium-clad fuel assemblies to produce hydrogen gas, which is believed to have exploded approximately 20 seconds after the original steam explosion. This blew debris and radioactive particles into the atmosphere to altitudes well over one kilometer, where the prevailing winds carried them northwest in the direction of Scandanavia. The reactor's core also ignited, sending extremely radioactive graphite into the atmosphere as well. More than 30 fires were started as fragments of the core landed on the roofs of adjacent buildings. According to Soviet officials, there was partial destruction of the reactor core and complete destruction of its cooling system. They did not report that there was an actual meltdown of the nuclear fuel, but Western experts claim that the type and magnitude of radioactive particles found in Europe several hundred miles from the reactor indicated that there was a partial meltdown. Some question other aspects of the Soviet explanation as well.[52]

The Soviet Response.—Immediately following the accident, the primary task was to control the fire. About 90 minutes after the explosions, firefighting units arrived from Pripyat and Chernobyl. It took them 40 minutes to extinguish fire on the roof of the turbine room and 1 hour to extinguish the fire on the roof of the reactor building. The graphite in the reactor core burned for several days after the accident, causing a more dangerous problem which may not have been noticed at first. Beginning on April 28, Soviet helicopters were dropping sand, clay, lead and boron on the core in order to extinguish the graphite. It was not until May 10—14 days after the accident—that the helicopter effort ended and the Soviet news agency TASS announced that the reactor was no longer burning. The burning graphite initially may have been as hot as 5,000 degrees centigrade, 10 times the temperature of the graphite under normal operating conditions and more than hot enough to melt the uranium fuel. While the graphite was eventually smothered, there was continuing concern over the possibility that any fuel left in the core might melt down. By early May, however, the Soviets apparently had managed to get liquid nitrogen into the core, and the core's temperature lowered significantly.

The Soviets apparently took other actions soon after the explosions. Yuri A. Izrael, chairman of the State Committee for Hydrometeorology and Environmental Protection, commented at the news conference accompanying the release of the Soviet report that, in the area around the nuclear powerplant, "four airplanes manipulated the weather with the assistance of special agents." In other words, they seeded distant rain clouds, something the Soviets often do when trying to assure dry weather at a certain site for various reasons, such as holiday celebrations. This reportedly led to more than 1 month with little rain in the region, helping to prevent radioactive materials from washing into rivers. Such seeding was discontinued after the most dangerous and short-lived isotopes had decomposed and the levels of radiation fell.

Chernobyl unit No. 3, which was technically linked to the damaged unit, continued operation despite the fire and other damage until 5:00 a.m. on April 26, approximately 3½ hours after the accident. Units No. 1 and No. 2 continued operation for approximately 24 hours after the accident. The continued cooperation of the ventilation systems in these units caused significant radioactive contamination in parts of the equipment and buildings.

A number of those at the plant had been exposed to high doses of radiation and suffered burns from fighting the fire. All were said to have been given immediate medical attention. By 6:00 a.m. on April 26, 18 people had been hospitalized and another 24 were hospitalized by the end of the day. Clinical institutes in Kiev and the specialized hospital unit No. 6 in Moscow were selected for the treatment of the most serious cases. On April 27, 129 individuals were taken by airplane to the Moscow unit. In all, 300 persons were hospitalized. Later, a radiological center was established in Kiev to monitor the population in the area around Chernobyl.

Soviet officials state that the evacuation of the population within 10 kilometers of the plant, including the town of Pripyat, began at 2:00 p.m., April 27, approximately 36 hours after the accident occurred. General restrictions on the ability of Soviet citizens to move about freely made evacuation difficult. Over 1,000 buses had to be brought in from Kiev, 130 kilometers away, because most of the population did not have private automobiles. Evacuation of a wider, 30-kilometer area, including the town of Chernobyl, reportedly began on May 2 and was completed 2 days later. The first *samizdat* on the accident which reached the West, however, claimed that the evacuation began on the third, not the second, day, and only involved those living within a 10-kilometer zone. Those living from 10–18 kilometers from the plant, including women and children, reportedly had not been evacuated 6 days after the accident. A telephone conversation wth a French teacher living in Kiev, reported on Paris Domestic Service on April 30, made a similar assertion, claiming that, at that point, the people were not being evacuated but were requested to stay in their homes.[53] Some evacuees were permitted to take potentially contaminated livestock with them.

Some experts claim that, intentional or not, the delay in evacuation actually may have exposed the local population to less radiation than had they been evacuated immediately after the accident. They believe that the direction of the wind and the height of the radioactive particles the morning of April 26 left the authorities with no safe routes for evacuation, and thus it was best for those living in the region to remain in their homes. Monitors in Pripyat measured radiation levels, within limits, until the morning of April 27, and the evacuation began that afternoon. The Soviets claim that the inhabitants of Pripyat were told to stay indoors and to close all windows. It is possible that the Soviets decided to evacuate the area only after the winds had shifted direction, threatening Pripyat and some of the other major towns.

The Soviets at first reported that a total of 92,000 people were evacuated. Leonid A. Llyin, a vice president of the Academy of Medical Sciences later stated that 135,000 people, 45,000 of them children, were evacuated from the area. According to Pravda on June 4, 60,000 children were evacuated from certain areas of Byelorussia, some of which were outside of the evacuation zone. Bragin, a Byelorussian town with a population of 7,000 and outside of the zone, was not evacuated quickly, because there was no decision on where to send the inhabitants. In early July, the Soviet newspaper *Trud* reported that thousands had been evacuated from Gomel, a large Byelorussian city also outside of the evacuation zone.

Evacuees were sent to various parts of the USSR. Some were sent to Black Sea resorts; others to villages and farms to the north and east, where they were crowded into homes of residents or temporary shelters. Many evacuees have complained about the poor treatment they received from local officials and about the lack of information provided to them on what they should do, and some of their complaints have been published in Soviet newspapers as a warning to local officials. There also have been reports that the sending of thousands of evacuees to the Baltic States may have caused resentment among the local population who wanted to help the true victims of the accident but feared that the authorities were using the relocations as a pretext for further russification efforts by bringing in people who did not come from the evacuation zone.

Thousands of new homes have been built in Ukraine and Byelorussia for the evacuees.[54] The Soviet press has taken great pains to describe in detail the high quality of the new housing. Its construction indicates that radiation in some areas of the contaminated zone will remain beyond acceptable levels for a long time to come. Many evacuees have since returned to areas claimed to be decontaminated.

The Soviet State Bank Gosbank, started a relief fund for the evacuees, known as Special Account 904, the Chernobyl Relief Fund. According to a Gosbank official, hundreds of millions of rubles have been transferred to their fund. Foreign citizens and Soviets working abroad contributed hard currency, which was then converted into rubles through the Soviet Foreign Trade Bank (Vneshtorgbank) into the account. Various events—including a rock concert and a dog show—have taken place to raise funds for the account. Funds are being allocated for decontaminating population centers, resettling people and providing them with housing and financial compensation according to the size of the family. Special, no-interest loans with repayment terms of 15 years are also being offered the evacuees.[55]

Soviet authorities claimed that radiation levels in Kiev were below dangerous levels, due mostly to winds blowing the radioactive particles north over Byelorussia. Despite official assurances that radiation levels in the city posed no threat, there were numerous reports of people who crowded railway stations and airports in an attempt to leave. In some cases, the militia reportedly intervened to disperse large crowds at railway stations. One report asserted that 18,000 people were treated in or near Kiev after the accident, most suffering from anxiety. A significant percentage of the city population is known to have stopped drinking tap water. Another report stated that a group of evacuees went to Kiev to demand explanations from the authorities about the lack of information on what had happened, and were subsequently arrested.

Despite fears of radiation, a bicycle race in the Kiev area and the May Day parade on May 1 went on as scheduled. According to Kiev Domestic Service, 120,000 people took part in the festivities, which were highly publicized on Soviet television.[56] It was not until 1 week later (May 8) that the mayor of Kiev announced that schools for about 250,000 children would close on May 15, several weeks early, and that the children would be sent out of the area. At about the same time, the Ukrainian Minister of Health recommended that people not swim in reservoirs and thoroughly wash vegetables and fruits. Street sales of food and soft drinks were prohibited for a time in May, and the streets were periodically washed by water trucks. A back-up water supply for Kiev was created and the ground water from around the Chernobyl plant was diverted to prevent a possible contamination of the water supply. Children returned to Kiev for the resumption of school in September, joined by approximately 1,000 children from Pripyat.

There has been considerable concern over the possibility of the contamination of milk, meat and other agricultural produce in the USSR. Many people were able to take livestock with them before evacuating the area surrounding Chernobyl. According to Leonid Ilyin, a ban was imposed on the consumption of milk from cows that grazed in pastures which were subjected to radioactive contamination as early as April 30. Top soil has had to be scraped up in parts of the evacuation zone and hauled off for burial as nuclear waste. In parts of this region farming already has resumed, leading to the possibility that some remaining radioactive particles could accumulate in crops. While harvesting in affected areas has been shown on television, with special note taken of measures to protect the workers from radioactive dust, requests from diplomats and reporters to view the harvesting were refused.

Following the evacuation of the population and the stabilization of the destroyed reactor, concrete was pumped below the reactor to prevent contamination of water supplies as a first step toward sealing it off completely. In the months that followed, the Soviets have attempted to seal the damaged unit in a concrete "sarcophagus," as it has been called by the Soviet media, an effort that has been complicated by serious design and supply problems. How to build a structure that will effectively enclose the reactor but will not trap so much heat from the core that a new fire or explosion might occur has been a major problem. Andronik Petrosyants, chairman of the State Committee for the Utilization of Atomic Energy, stated that provisions had been made for "ventilation with reliable filters." He also reported that a huge concrete and metal slab has been installed under the unit, attached to which are 200 electric coupling devices to monitor reactor temperatures. Work on the structure had been slowed by shortages of concrete, and high levels of radiation present at the required cranes and bulldozers operated by remote control—referred to as robots—to do most of the work.[57] Soviet officials admit that some radiation was still being emitted from the core of the reactor months after the accident occurred. With the structure now complete, some Western analysts worry that it may have too short a design-life—about 50 years—compared to the long-term radiation it needs to contain.

In addition to entombing the exposed core, radioactive particles needed to be washed off contaminated buildings, houses and trees. As the water from these buildings contaminated surrounding soil, that soil needed to be scraped away and buried. Liquid nitrogen has been used to freeze the ground in the vicinity of the reactor, preventing rain from washing the radioactive particles deep into the ground. To do the clean-up work, both at the accident site and in surrounding areas, workers have been brought in from other parts of the Soviet Union, and their safety, as well as the adequacy of the clean-up effort itself, has been questioned. Soviet officials claim that there were 100 radiation monitoring workers working at the Chernobyl site around the clock. Those operating cranes are said to have been in lead-plated cabins. Special walls were built to protect workers, who must nevertheless work short shifts as a precaution against being exposed to more than tolerable levels of radiation. At the same time, men without protective clothing have been shown on Soviet television entering the evacuation area for clean-up work. The workers brought into the area from other parts of the USSR are housed in a newly-established settlement, Zelenyy Mys, which, according to the Soviet media, lacks proper design and adequate social and consumer service facilities. The August 27 edition of the Soviet Army newspaper *Krasnaya Zvezda* noted a shortage of water which is causing a serious hygiene problem among workers. While some new housing has been built, workers were living in tents or on river boats moored at a jetty near the village.

Many of the clean-up workers are so-called "reservists"—men conscripted for construction and other types of manual labor regardless of previous military duty. According to several articles appearing in the Estonian Komsomol newspaper *Noorte Haal* in mid-August, approximately 200–300 ethnic-Estonian reservists were taken away from their normal jobs, often at night, and ordered to work in the decontamination effort at Chernobyl for a minimum of 30 days. Included among this group were old men and men with large families. These reservists complained of having to work as long as 14 hours a day, with only 2 days off per month, in an area still dangerous to human health. The work itself was strenuous, consisting of washing houses and trees in villages as well as stripping topsoil, loading it onto trucks and replacing it with new topsoil. Many feared becoming sterile, particularly after a few of them became sick from the radiation. A number of them voluntarily exposed themselves to high levels of radiation in order to get sent home early. When their service period was extended in June from the original 30 days to 2 months and then to 4 months, they grew angry and protested with work stoppages that apparently lasted until July. At one point, a scuffle broke out. Rumors circulating in Estonia about the tense situation at Chernobyl had grown to such an extent that the authorities felt it necessary to give a surprisingly candid account in the official press. In response to the protests, men over 45 or with three children legally living at home were allowed to return, and some punk rock groups were sent to the area to perform and boost the morale of those remaining.[58] Similar reports of forced recruitment for work at the Chernobyl powerplant have come from Latvia as well. In early June it was reported that about 200 Latvian workers were assembled quickly and sent to the Chernobyl site.

There have been reports that authorities took action against individuals in Kiev, Talinn and Moscow who protested the official response to the Chernobyl crisis or the use of nuclear power. Unofficial peace group activists tried to organize a demonstration in Moscow against nuclear power. Some prospective participants were prevented from leaving their homes, and others were arrested after collecting signatures for a petition.

A government commission was set up soon after the accident to study its causes and to implement the clean-up effort. In addition, high-level officials have visited the evacuation zone to inspect clean-up efforts. On May 4, Politburo members Nikolai I. Ryzhkov, Chairman of the USSR Council of Ministers, and Yegor Ligachev traveled to the accident site. Vladimir Shcherbitsky, First Secretary of the Ukrainian Communist Party, visited the site in July. On August 8, Ryzhkov returned with Politburo member Victor M. Chebrikov, Chairman of the KGB. Accompanied by Candidate Politburo member Slyunkov, First Secretary of the Byelorussian SSR, A.P. Lyashko, Chairman of the Ukrainian SSR Council of Ministers and A.A. Titarenko, Second Secretary of the Ukrainian Communist Party, they traveled to Chernobyl and the surrounding

Kiev and Gomel Oblasts to review the clean-up effort and the living conditions of the clean-up workers and the evacuees.

Action has been taken against at least 17 officials, who are said to have been responsible for the accident, including the Chairman of the State Committee for Atomic Power Inspection; a Deputy Minister of Power and Electrification; a First Deputy Minister for Medium-Machine Building; and a deputy director of a research and design institute; all were relieved of their duties. The Chernobyl plant director and the station's former chief engineer were dismissed and expelled from the party for "gross errors and omissions in his work, for negligence in ensuring the power station's safe operation and for conducting tests on the reactor unit No. 4 without proper preparation or coordination with the appropriate organs." The secretary of the Chernobyl AES Party Committee was dismissed from his post, and the first secretary of the Pripyat Party Gorkom was given a "strict penalty." On lower levels, a few drivers and officials have been expelled from the CPSU "for cowardice and alarmism" as well as for not assisting evacuees under their supervision. There was also an apparent need to redistribute power and authority within the Soviet nuclear power industry, since the Presidium of the Supreme Soviet of the USSR created a new Ministry of Atomic Power.

The Soviets have reported that about one-half of the 27 graphite-moderated reactors had been shutdown for costly repairs. The Soviets restarted the first unit at Chernobyl on September 29, 1986, and the second unit is scheduled to restart in October 1986. The third unit, damaged during the accident, currently is being repaired and is expected to resume power in the second quarter of 1987. Encasing of the damaged fourth unit is said to be complete.

Information and Contacts.—While the Soviets appeared to have taken some measures relatively soon after the accident occurred—particularly in fighting the fire—there was no public announcement or warning of the accident. Moreover, Western reporters and diplomats were prohibited from traveling to Kiev. For a few days in early May, Western reporters were prohibited from sending filmed reports from Moscow to their networks via satellites. While technical reasons were cited, most attributed the prohibition to the Chernobyl accident.

The first indication that an accident had occurred came on the morning of April 28, more than 48 hours after the accident, when monitors at the Forsmark nuclear powerplant in Sweden recorded increasing levels of radiation. Recorded levels were about four times that of background and led initially to an unnecessary shutdown and evacuation of nonessential staff from the Forsmark facility. Soon thereafter, Swedish officials concluded from the isotopic content of the recorded emissions that it did not come from a nuclear weapons test, and, by examining the breakdown of the particles and the weather patterns, determined that a nuclear accident had taken place in the USSR. Thus, high levels of radioactive particles had crossed populated regions of Ukraine, Byelorussia, the Baltic States, sections of the Russian SFSR, northern Poland, Finland and Sweden without any Soviet warning whatsoever.

At the same time that the Swedes announced their findings, their Embassy in Moscow contacted the State Committee for the

Utilization of Atomic Energy and the State Supervisory Agency for Atomic Energy, requesting information. The answer given by Soviet officials was that they knew nothing of a nuclear accident in the USSR. After repeated prodding that day, however, TASS reported on the evening of April 28, nearly 3 days after the accident had taken place, that:

> an accident has occurred at the Chernobyl atomic power plant as one of the atomic reactors was damaged. Measures are being taken to eliminate the consequences of the accident. Aid is being given to those affected. A government commission has been set up.[59]

This statement was read over Radio Moscow as well as during *Vremya,* the Soviet news program.

There has been considerable speculation as to why it took Soviet officials so long to acknowledge the disaster, let alone provide any concrete information on what had taken place. The nature of the Soviet system, with its large, secretive and centrally-controlled bureaucracy, deserves at least some of the blame. At the same time, however, there are indications that the higher levels of the Soviet leadership knew early on that such a serious accident had taken place. For example, an official from Kiev arrived at the scene soon after the accident, and medical personnel from Moscow arrived early the same morning.

Furthermore, a bureaucratic delay does not explain the continued lack of information about the accident well after it was known that something had happened. For example, not until 2 weeks after the accident did the Soviet Government release any radiation figures for affected regions of the USSR. Traditional Soviet censorship may have played a role here, as previous environmental disasters in the USSR, such as the 1957 Kyshtym nuclear disaster in the Urals, the 1980 Anthrax accident near Sverdlovsk and the 1983 saline accident in the Dniester River; all received little or no mention in the official media. To the extent that a new policy of "*glasnost,*" or "openness," might have made things different in 1986 by permitting limited discussion of a disaster in the official media, such permission did not come until as late as 3 days after the disaster.

Some have argued that Soviet officials thought it necessary to delay an announcement until evacuation preparations were complete in order to avoid widespread panic among the regional population. But the absence of news may actually have led to an increase in fear. Vague news of the incident still reached many people through informal, indirect channels. *Samizdat* sources claim that foreign radio broadcasts were more difficult to hear near Chernobyl than normally. The local population, therefore, had no source of information about the extent of the danger, and the proper reaction to it, leaving no alternative but to assume that the worst had happened. Thousands of pregnant women in the Kiev region reportedly filled local hospitals demanding abortions, and rumors circulated that vodka, red wine and a "green tea" from Asia provided some protection from radiation.

At the same time, other people in affected areas, who either did not know of the accident itself or of its harmful effects, carried on with normal activities well after the incident took place. Children in Pripyat, for example, were reported to have gone to school the morning of the disaster. Had circumstances been different, the impact of the lack of information in localities would have been much worse. Furthermore, any perceived need for silence to prevent panic reflected the obvious lack of preparation for large-scale evacuation in the event of a real emergency.

There was considerable concern in the West, not only over the effect of the radiation as it crossed borders but over the plight of the persons in the European areas of the USSR, particularly in Ukraine. Many with relatives living in affected areas of the Soviet Union attempted to call them but were unsuccessful, despite a special reservation system set up by AT&T's International Operation Center in Pittsburgh, Pennsylvania, for calls to Kiev, Leningrad and Moscow.[60] Some say that telephone lines would be disconnected when conversation turned to Chernobyl. While contacts between Ukrainians in Poland and their relatives in the USSR have always been limited, controls were reported to be further tightened following the accident. Attempts to send CARE packages were unsuccessful.

A few people who were reached by concerned relatives in the West reported what rumors they had heard. Since Western reporters and diplomats were prohibited from traveling to the area and the Soviets initially were not reporting details themselves, these unofficial reports formed the original basis for Western knowledge of the damage caused by the accident. Reports from relatives in Ukraine estimated the death toll to be as high as 15,000 and that bodies were being transported to a nuclear waste deposit where they were buried. Individuals from Kiev and Lviv (Lvov) reported that they were told not to drink the water. In addition, members of German companies located in Kiev reported hearing estimates of over 1,000 fatalities, while early reports from United Press International noted that a resident of Kiev believed that more than 2,000 people had died. A ham radio operator in the Kiev region, speaking to a Japanese ham radio operator and overheard by a Dutch operator, claimed that hundreds had been killed; other reports said that 50–100 individuals had been killed. While these and other initial reports from a variety of sources later turned out to be higher than the actual numbers (although not all of them were totally unrealistic, given the fact that the exact scenario of the accident had not been given), they were an inevitable result of the extreme secrecy with which the Soviet authorities dealt with the accident in the days immediately following it.

The early speculation in the West seemed to have had the effect of making the Soviet authorities more forthcoming in giving information as they attempted to refute "rumors" circulating in the Western press. For example, a statement on April 30 by the USSR Council of Ministers first reported that two people had been killed in the accident, which was repeated the following day with the addition that "some news agencies in the West are spreading rumors that thousands of people allegedly perished during the accident at the atomic power station"[61] On April 30, the Soviet television news program, *Vremya,* showed the first picture, a still photograph of the accident, commenting that: "as you can see, there is no gigantic destruction or fires, as some Western agencies write. Similarly, there are not thousands of dead." Subsequent statements continually attempted to reassure the population that only two people had died, that the quality of drinking water was good, and that the state of the atmosphere in the region around Chernobyl does not give cause for alarm, all "contrary to reports by some agencies in the West." [62] At the same time, there continued to be a serious lack of information on other aspects of the accident, such as how it occurred and the actual severity of the radiation released. Instead, Soviet reports began to utilize the situation to focus on the "dangerous situation" caused by nuclear reactors in the West. Less than 1 hour after the first, short announcement in the evening of April 28 that one of the units at Chernobyl "was damaged," TASS released another statement, noting that, while this was "the first one in the Soviet Union . . . in the United States, 2,300 accidents, breakdowns and other faults were registered in 1979 alone." [63]

On May 14—18 days after the accident—CPSU General Secretary Mikhail Gorbachev gave the first statement on what had happened. Broadcast on Soviet television, Gorbachev gave the death toll (nine at that time) and described some of the damage to the surrounding area. In addition to providing some further details on what had happened, he noted the sympathy and support expressed in other countries, specifically mentioning foreign scientists and specialists who offered assistance and businesses which reacted promptly to Soviet requests for equipment. materials and medicines. At the same time, he said that "governments, political figures and mass media in certain countries, especially the United States, . . . launched an unrestrained anti-Soviet campaign. . . . Certain Western politicians had very definite aims—to blast the possibilities for balancing international relations, to sow new seeds of mistrust and suspicion toward Socialist countries."[64] This prompted the White House to state that "Citizens of foreign countries and their governments had a legitimate interest in knowing the facts, since their own health could be affected. In the absence of detailed, official information, the media reported what they could on their own. Any attempt to attribute legitimate foreign interest in a major catastrophe to devious political motives is as deplorable as it is without basis. Unfounded accusations against others cannot be used in an attempt to exonerate national officials from the obligation to inform the public promptly of accidents which may affect their health." [65]

The Soviets attempted to place blame on the US Government for the bad publicity they received regarding Chernobyl. A forged letter, purportedly signed by a US official and attempting to make the US Government appear to have a plan "to make the Soviets look bad" following the nuclear accident for "propaganda purposes," was sent to the *Washington Post* and other news organizations in the summer of 1986.[66]

The Effect.—Despite the catastrophic figures concerning the accident, the fact that more harm was not done in the vicinity of Chernobyl and that more people did not perish or suffer from the immediate effects of the radiation released can be attributed to several factors. Chernobyl is located in an area of relatively low population density, and the accident occurred in the early hours of the morning, when most people were indoors. The large explosions and the ensuing intense heat from the burning graphite combined with the clear weather to send the radioactive particles to high altitudes. The winds were blowing in a direction that prevented the radioactive dust from blowing over some of the closer towns, such as Pripyat and Chernobyl. At the same time, the high altitudes reached by clouds of small radioactive particles produced serious fallout over a much larger region than expected.

The 3.5% of the core inventor released into the atmosphere represented more radiation than that released by the bombs dropped on Hiroshima and Nagasaki in World War II.[67] As several scholars have noted, "the Chernobyl accident exposed hundreds of millions of people to an involuntary risk that exceeds the risk which finally motivated the nuclear weapons states to institute an atmospheric test ban in 1963." [68] A study released at the end of September by the Lawrence Livermore Laboratory claimed that Chernobyl emitted 50% more long-term radiation—in the form of cesium, which takes decades to decay significantly—into the world's air, topsoil and water than all the nuclear weapons ever exploded.[69]

There was significant contamination of local fish, vegetation, soil, agricultural produce and woodland. Soviet experts note that different plant and animal life have different levels of resistance to radiation, changing the way they interact with each other and modifying the ecosystem itself. In the Pripyat River, radiation doses high enough to cause damage to the immune and reproductive systems of organisms was recorded. Similar rates were found in the plant's cooling system reservoir. Soviet officials claim that fish found far to the south, including the Kiev Reservoir, did not have radiation levels significant enough to cause changes.

Byelorussia, lying just to the north of Chernobyl, was the hardest hit by the cloud of radioactive particles, with the exception of parts of Ukraine in the immediate vicinity of the reactor. In Byelorussia's Brest Oblast, bordering Poland, 50% of the milk and dairy products were tainted. The Soviet report to the IAEA acknowledged that milk from the region contained more than 100 times the radioactive iodine-131 allowed under government standards. In Gomel Oblast, Byelorussia, 90% of the fish in the lakes and the rivers were highly contaminated. Forests will have elevated radiation levels for 3 to 4 years within the evacuation zone. Highly contaminated forests within the contaminated zone had to be burned.

The radiation also had disastrous effects on food sources in Scandinavia for several types of animals—especially reindeer. Radioactivity was found in lichens, the main food source for reindeer in the Lapland regions of northern Norway and Sweden. This contamination means that hundreds of thousands of reindeer must be slaugthered and their meat, a regular part of the Nordic diet, discarded. There is fear that, in 2 or 3 years, there will be a large number of reindeer dying from radiation. Sweden intends to feed the meat, which will be dyed dark blue to warn humans, to minks. In addition, several types of berries in Scandanavia have been declared unfit for consumption. The accident also coincided with annual bird migrations. One source in Helsinki, Finland, reported that birds carrying as much as 50 times the normal amount of radiation were found in Finland. Children were warned not to pick up any dead birds.

Soviet sources claim that only two people, an adjuster of automatic systems and an operator of the plant, died during the explosions—one by extensive steam burning and the other from falling debris. While there are estimates of the number of additional deaths, cancers and other effects of exposure to radiation, such estimates may not be very accurate due to the variations in radiation levels, population densities and ability of some portions of the population to respond with protective measures.

Initially, 204 people, principally those who had fought the fire, were hospitalized. By mid-May, approximately 100 other people must have been hospitalized, since General Secretary Gorbachev, in his speech of May 14, stated that 299 people had been hospitalized. Of them 203 had cases of acute radiation sickness, 31 of whom have since died. Of those that died, six were firefighters, and the remaining 25 were workers from the Chernobyl plant. Most of them have been buried in Mitinskoye Cemetery, located just outside of Moscow. While most of the early estimate mentioned in the Western press were too high, there are some who seriously question the official Soviet death toll, citing the fact that hundreds of individuals were at the station at the time of the accident and that firefighters, unaware of the dangerous levels of radiation being released, might not have taken appropriate protective measures.

In estimating the number of excess deaths in coming decades from radiation released by Chernobyl, the Soviets have provided figures of what they believe to be the percentage increase in the number of cancer deaths from what probably would have taken place in the European areas of the USSR under normal circumstances. This has the effect of making the number of deaths appear minimal. From these percentages, it is estimated that there will probably be about 280 excess cancer deaths over the next 70 years among those evacuated from the 30-kilometer radius from the Chernobyl plant, a 2% increase. The Soviets also reported that cancer deaths in the European region of the Soviet Union will rise by less than 0.05%, which translates to about 5,000 deaths in addition to the estimated 9.5 million cancer deaths normally expected to occur over the next 70 years. Fatalities caused by thyroid irradiation will be 1% of the 150,000 expected before the accident, or about 1,500. This gives a total of about 6,500 excess cancer deaths caused by the Chernobyl accident. Another figure in the report, however, states that contamination of the food supply "may result in an additional death rate from cancer that does not exceed 0.4% of the natural death rate from malignant growths," which would translate into about 38,000 additional deaths. The Soviets are said to have subsequently lowered this figure to about one-tenth this number of additional deaths.

These numbers are all subject to dispute. For example, Warren Sinclair, president of the National Council on Radiation Protection, believes that the number of excess cancer deaths among those from the evacuation zone is closer to 500 than 280.[70] Others give estimates of total excess deaths caused by Chernobyl radiation ranging from a few thousand to hundreds of thousands over the coming decades. Dr. Dan Beninson, head of the International Commission on Radiological Safety, and Morris Rosen, Director of the IAEA Nuclear Safety Division, estimated in August that there might be a 0.3% increase in the number of cancer deaths in the European USSR over the next 70 years, representing an additional 24,000 cancer deaths. Most of the deaths, they say, will take place in Byelorussia and Ukraine.[71] Frank von Hipple, a physicist from Princeton University, and Thomas Cochran of Natural Resources Defense Council, on the other hand, used estimated exposure due to iodine 131 and cesium 137 from Chernobyl and calculated in May 1986 that radiation from the Chernobyl plant could cause about 50,000 cases of cancers across northern Europe, but that only 5,000 would be fatal. These figures may be inaccurate, however, because they assume uniform population density and do not take into account greatly varied measurements of the level of radiation within a few kilometers of each other.[72]

John Goffman, a professor of medical physics at the University of California, calculated much larger figures, estimating that, from cesium emitted alone, 500,000 people in the USSR and another 500,000 in Europe and elsewhere will develop cancer, about half of which will prove fatal. He expects another nearly 20,000 people to develop leukemia. He believes that lower estimates are based on false assumptions about radiation and cancer risk which do not take into consideration many cases of breast and lung cancer that developed 40 years after the Hiroshima and Nagasaki bombs, particularly among those who were children at the time. He believes that the children exposed to radiation from Chernobyl may be the most affected over the years.[73]

While these statistics suggest that a significant number of people will be physically affected by the Chernobyl accident, it should be kept in mind that, according to experts, these effects are minor compared to the long-term effects of pollution from fossil fuels and the use of tobacco. Some compare the additional amount of radiation received by most individuals—other than those who were near the reactor at the time of the accident—to that received on a round trip, trans-Atlantic flight.

The initial economic effects were not as significant as they would have been during winter months, since the accident occurred just as summer was approaching and energy demand was dropping. Although the Chernobyl plant, which produced approximately 1.5% of the country's electricity, was not producing any electricity from April 27 to September 29, Soviet statistics have not indicated a decline in electrical generation but a steady increase. For the first 7 months of 1986, electrical production has been almost 4% higher than during the equivalent period in 1985, even though adjustments were being made in the other graphite-moderated reactors (they may have remained in operation as the adjustments were made).[74] Nevertheless, there have been reports of electrical shortages and "brown-outs," particularly in Ukraine.[75]

Soviet authorities have said that they will continue to develop their nuclear power industry but that, in the next few years, nuclear energy production may slow or drop as further changes are made. This may result in an increased reliance on fossil fuels, which are increasingly difficult to obtain because they are predominantly found in the less-developed eastern regions of the country.

It also is likely that there will be a decline in Soviet exports of electricity to Eastern Europe. Early speculation in the West was that Chernobyl would also result in increasing imports of Western agricultural products, due to contamination of many Soviet crops. However, there has been no apparent increase in these imports as a result of Chernobyl.

The East European Response.—Polish and Hungarian media coverage of the Chernobyl accident was more candid than in the other East European countries, where the limited news reported by Moscow was simply repeated. Polish and Hungarian press coverage began as early as April 28, the day the Soviets announced that the accident occurred, and included West European reportage in Polish nonparty papers and the Hungarian Domestic Service.

Poland was the only country to distribute doses of iodine to children after the accident as a counteragent to the accumulation of the radioactive iodine in the thyroid gland. Originally, this action was taken only in the northeastern regions of the country, where the radiation level was highest. It was later extended to the whole country as unfavorable weather patterns kept radiation levels from falling until several days after the accident. Some reports claimed that iodine tablets were not available in some areas, and, because many health workers were not trained to administer the medication, some children were given undiluted iodine. There was also worry that parents might give children more than one dose of iodine, because the official media failed to warn the population that excessive amounts are toxic and potentially lethal. Information centers were set up for inquiries, and experts from a special commission monitoring radiation levels replied to questions on television. Although officials stated that radiation would not reach dangerous levels, the Government restricted sales of milk from grass-fed cows and warned the public to wash vegetables and fruits.

The Temporary Coordinating Commission of Solidarity (TKK) issued a statement on May 13 which called the Government response inadequate. It claimed that the Government failed to provide basic information about which areas of Poland were actually endangered by the radioactive fallout and what concrete preventive measures could have been taken quickly by the population, especially children and teenagers. The statement also expressed its dissatisfaction with the way the Polish Government attached radio broadcasts from the West, from which "Poles learned about the Chernobyl explosion and the consequent threat posed to the Polish population." The statement pointed out that Chernobyl "demonstrated more clearly than ever before the link between environmental protection and freedom of association and information." [76]

Another statement, by the Malopolska Region of Solidarity on May 4, also objected to that official radiation measurements and offering recommended safety precautions were inadequate, independent measurements by scientists and specialists in the Krakow area. The statement expressed concern that children in the region were obliged to attend May Day parades in contaminated areas. The statement then suggested various precautions.[77]

Charter 77 issued a statement (Document No. 15/86) on the Czechoslovak Government's response to Chernobyl. The document claimed that a "slight increase" in radioactivity "was all the official information which the citizens of Czechoslovakia were given about the situation on their territory during this most critical time. There were no instructions or advice as to what citizens should do as far as health and hygiene are conerned."[78] A small group, known as "Antiatom," is said to have formed in Czechoslovakia in protest of the construction of Czechoslovak reactors.

International Assistance and Cooperation.—One of the most important aspects of the Chernobyl accident has been its international impact; there was widespread concern over the effects of the radiation as it crossed international borders and the plight of Soviet citizens directly affected by the accident. The incident dramatically illustrated that nuclear safety transcends national boundaries.

Upon learning of the accident, most other countries immediately sought the protection of their citizens in the Soviet Union. For example, as a precaution, French students were requested by their Embassy in Moscow to leave Kiev. The British Foreign Office repatriated young children and pregnant women from their diplomatic corps stationed in Moscow and from Poland, and 101 British nationals left Minsk in the last days of April and early May. The FRG, which had over 200 technicians in Ukraine and Byelorussia, recalled them at about the same time. In Moscow, the Italian, Japanese and Swedish Embassies told their nationals not to consume tap water or milk, and to wash vegetables carefully. The US Government advised American citizens not to travel to Kiev immediately after the accident. Negotiations for the new US consulate in Kiev were stalled for a considerable period of time due to the Soviet refusal to allow an American radiation inspection team into Kiev to investigate whether radiation levels were safe.

On April 29, the League of the Red Cross and Red Crescent Societies sent an offer of assistance to the Alliance of the Red Cross and Red Crescent Societies of the USSR (the Soviet Red Cross). The offer, according to the League, was "graciously declined;" the Alliance has had no role in assisting victims of the nuclear accident because all actions regarding the accident are being coordinated by the Soviet Government. On April 30, American Red Cross president Dr. Richard Shubert expressed concern and offered assistance in "helping to reduce human suffering." [79] The Canadian Red Cross offered assistance as well. These offers, too, were rejected.

In Australia, Canada and the United States, Ukrainians attempted to send small packages of powdered milk, vitamins and other items to their relatives in the danger zone. Soviet authorities did not permit delivery of these packages, however, since sending vitamins, medicines and similar items through the mail is prohibited by Soviet law.

Soviet authorities did accept contributions from foreign citizens to the "Chernobyl Relief Fund" established to help the evacuees. Through the Soviet foreign trade bank, Vineshtorgbank, hard currency was converted into rubles and deposited into a special account in the main Soviet bank, Gosbank. Private attempts to provide direct assistance, often through a Western government endorsing the effort, were unsuccessful. In a plenary session at the United Nations on May 1, Yuri Dubinin, then Soviet representative to the United Nations, expressed gratitude for the sympathy shown for the victims but declined any foreign assistance.

The Soviets initially approached FRG and Swedish authorities, asking technical information about methods to extinguish a graphite fire. At least two West German research institutes were reported to have have responded positively to the request. Swedish officials said that they were able to provide only limited assistance since the four nuclear powerplants in Sweden are not of a graphite-moderated design. By April 30, when the Soviets announced that the situation had been "stabilized," concern over the possibility that some of the fuel left in the damage core might melt down into the complex of pipework and concrete foundations below the reactor prompted the Soviets to approach the FRG again for information on the reaction of molten nuclear fuel with concrete.

Other countries also provided some expertise and special assistance to help bring the accident under control. For example, the British provided the Soviets with protective clothing for use by workers in the contaminated areas. The French Nuclear Protection and Safety Institute of the Atomic Energy Commission offered information on seven French graphite-moderated reactors. France, which has had experience treating radiation sickness, also offered medical assistance.

Perhaps the most well publicized assistance was provided by Dr. Robert P. Gale of the UCLA Medical Center. A bone marrow transplant specialist, Gale heard about the nuclear disaster and contacted Armand Hammer, the chief executive officer of Occidental Petroleum, who used his close, personal relations with members of the Soviet leadership to obtain permission for Dr. Gale to travel to the USSR. Per Soviet request, Dr. Gale left as soon as possible, on May 1. By the time he had arrived, the Soviets had already operated on nine individuals. At first he was briefed on 19 people who were critically injured, and one week later he was informed about an additional 16. Dr. Hammer traveled to the Soviet Union 2 weeks later with a plane load of additional medical supplies. Gale was later assisted by other Western doctors. Despite the efforts of these and Soviet doctors, many of the patients were beyond help and have since died.[80] In June 1986, an agreement was signed between Gale and the USSR Academy of Medical Sciences for a joint US-Soviet examination of medical developments involving evacuated population over a period of 30 years.

The Chernobyl accident resulted in some difficulties in relations between countries. Sweden objected to the continued operation of the Soviet RBMK reactors, particularly the Ignalino reactor in Lithuania. Several East European countries, particularly Romania and Hungary, protested a European Economic Community ban imposed on the importation of fresh foods from countries within 1,000 kilometers of Chernobyl. British farmers and the Health Division of the State of Oregon sought, without success, compensation from the USSR for losses incurred and the cost of monitoring radiation levels. Romania is believed to have sought compensation from the Soviet Union as well.[81] Soviet officials have said that the USSR will not compensate for any alleged damage in another country.

At the same time, the Chernobyl accident served as a catalyst for certain bilateral cooperation. For example, Soviet and American scientists had the opportunity to discuss, via direct satellite hookup on September 11, the Chernobyl and Three Mile Island accidents, issues of nuclear safety, the potential for bilateral cooperation on nuclear fusion research and the problems of international monitoring and emergency warning systems in case of future accidents. The teleconference, held between San Francisco and Moscow and broadcast by Cable News Network in several cities in the United States and Europe, was sponsored by the American Association for the Advancement of Science, the Soviet Academy of Science and the Esalen Institute's Soviet-American exchange program. Participants included Dr. Robert Gale along with Valery Legasov and Yevgeny Velikhov, vice-chairmen of the USSR Academy of Sciences.

While not a direct result of the Chernobyl accident, a bilateral protocol between the United States and the Soviet Union was signed in Moscow on August 22, 1986, which, among other things, permits the inspection of two reactors in each country. The protocol was signed by officials of the Soviet State Committee for the Utilization of Atomic Energy and the US Department of Energy. Romania also cooperated with the United States in the aftermath of Chernobyl. A group of US radiation monitoring scientists visited Romania in 1986 to consult with their counterparts.

The Chernobyl accident also resulted in greater interest in multilateral efforts to prevent a nuclear disaster. A general consensus developed soon after the accident that there was a lack of international collaboration in establishing measures to alert other nations after a nuclear accident with transboundary effects, to create radiation-monitoring networks with international access, and to set up channels for quick coordination of multilateral assistance in the event of an accident. Some also saw the need to upgrade existing international safety standards for nuclear power stations and to make them more enforceable, since they are now only advisory.

The principal international organization responsible for cooperative efforts in the use of nuclear power is the International Atomic Energy Agency (IAEA), located in Vienna, Austria. An independent intergovernmental organization within the United Nations System, the IAEA has 112 member states, including the United States and the Soviet Union. The IAEA coordinates many activities in the nuclear field, including a Radiation Protection Advisory Team and a Nuclear Safety Standards Program, and projects in fields such as Reliability and Risk Assessment, Radiation Protection (especially in regard to the transport of radioactive material), and Safety Research and Analysis.

The IAEA had been trying to establish a global warning system for nuclear accidents, but progress before Chernobyl was slow. There were only voluntary guidelines for safety, and the Soviet Government claimed to have followed them at Chernobyl. The IAEA does have an incident reporting system, and the USSR has participated in that as well. However, the system distributes analyses made after nuclear accidents to help educate others; it is not meant to be a system for notifying others about accidents.

The Soviets reported the Chernobyl incident to the IAEA on April 29, but provided no details. Although there is no requirement to provide details, the IAEA nevertheless asked the Soviet Union to do so. In response the Soviet Government provided a few additional details in a subsequent report on May 1. Then, at the invitation of

Soviet officials, Hans Blix, the Director General of the IAEA; L.U. Konstantinov, the Deputy Director General; and Morris Rosen, the Director of the IAEA Nuclear Safety Division, visited the USSR from May 5 to May 9, 1986. During the visit, the IAEA officials were able to examine the accident site by helicopter and to discuss with Soviet officials ideas and possible actions aimed at greater cooperation within the IAEA framework to improve nuclear safety and reduce the consequences of nuclear accidents. These efforts received a further boost when, in his May 14 speach, Gorbachev called for an international "system of prompt warning and supply of information in the event of accidents and faults at nuclear power stations, specifically when this is accompanied by the escape of radioactivity." He also called for a system for "the speediest rendering of mutual assistance when dangerous situations emerge." [82]

On May 21, 1 week after the Gorbachev speech, the IAEA Board of Governors held a special meeting to move ahead on a number of initiatives. This led to a special session on August 28–29, 1986, to discuss the Chernobyl accident in detail. The Soviets sent a 28-person delegation, headed by Valery Legasov, First Deputy Director of the Kurchatov Atomic Energy Institute. In total, 45 nations, including the United States, sent over 500 scientists as delegates to the special session. Just prior to the session's opening, the Soviets released a 382 page report to the delegates. The report has been called remarkable--by Soviet standards—for its openness and detail. However, while it did contain more information than expected, many expressed the view that it was still less than sufficient. For example, each time the report refers to the projected fatalities caused by radiation-induced cancer, it is expressed only as a percentage of cancer deaths expected for that region anyway. As the percentages are small, the impact of Chernobyl appears to be much smaller than if absolute figures were given. The Soviets explained that this was done so that the figures would not be taken out of context and "do psychological harm." No mention was made of radioactivity which crossed borders.

There was considerable discussion at the session. The Soviets blamed the accident primarily on human error. That the RBMK reactor has "shortcomings" was noted, but only with the comment that every reactor has them. The chief design flaw was that engineers failed to anticipate what led to the accident as, according to Legasov, they "psychologically did not believe that such a sequence of improper actions would be committed." The Soviets also outlined a series of new safety regulations for the operation of their nuclear powerplants.

Many took issue with the Soviet conclusions. Some US officials charged that, while the Soviet Union has made some changes in the design of its reactors since Chernobyl, it has not yet done enough to correct the reactor safety design defects highlighted by Chernobyl. They stated that initial steps taken by the Soviets to prevent the recurrence of future accidents were good, but added that the Soviets should require the construction of containment buildings around all reactors. They also argued that an accident similar to Chernobyl could not occur in the United States.[83]

A British delegate voiced similar concerns. Lord Walter Marshall noted that "even with all the steps they have now taken, the Soviet reactors do not reach the safety standard of the nuclear powerplants in the West." He added that "you can make any design safe by having clever operators, but the designers of Chernobyl gave the operators too difficult a task." The British Government has said that it warned the USSR 9 years ago that the design of its graphite-moderated reactors had "serious defects." Marshall went on: "We are not talking about hindsight here. This was judgment made in advance." He concluded that the design was "so unsatisfactory" that there would have been "no chance to get a license" to build one in the West.[84] Dr. Adolf Birkhofer, head of the FRG Reactor Safety Commission, added that "we don't agree that the accident was caused more by human error than technical deficiencies. That reactor was too hard to operate." [85]

Polish and Soviet delegates disagreed over the necessity of providing iodine tablets to children as a preventative measure. Soviet and French delegates also discussed the possibility of a terrorist assault on a nuclear station and ways to prevent that from happening.

Another special session of the IAEA was held on September 24–26, 1986 to discuss and endorse proposed conventions drafted in mid-August that arose from the Chernobyl accident. One of the agreements involves an early-warning system in the event of another nuclear accident, which could eventually involve setting up between 200 and 500 radiation monitoring stations in countries around the world. The second convention involves a coordinated emergency response mechanism among the IAEA states in the event of a nuclear accident which has effects that cross international borders. The convention calls for an international mobilization of experts, doctors and other medical personnel and civil authorities, who would be allowed to move freely to and in the affected area during an emergency.

APPENDIX A

U.S. TRADE WITH THE EUROPEAN CMEA 1/

(Millions of U.S. Dollars)

	1975	1978	1979	1980	1981	1982	1983	1984	1985
BULGARIA									
Total Trade	49.5	67.2	86.3	188.1	295.3	137.1	95.8	75.1	142.9
U.S. Exports	29.3	48.1	56.2	160.8	258.2	106.5	65.7	44.1	104.2
U.S. Imports	20.2	19.1	30.1	27.3	37.1	30.6	30.1	31.0	38.7
U.S. Trade Balance	9.1	29.0	26.1	133.5	221.1	75.8	35.5	13.1	65.5
CZECHOSLOVAKIA									
Total Trade	87.5	163.4	331.0	257.3	155.6	171.5	126.8	154.2	147.9
U.S. Exports	52.9	105.4	281.1	185.2	82.6	83.8	58.8	58.3	62.9
U.S. Imports	34.6	58.0	49.9	72.1	73.0	87.7	68.0	95.9	85.0
U.S. Trade Balance	18.3	47.4	231.2	113.1	9.6	16.1	[9.2]	[37.6]	[22.1]
GERMAN DEMOCRATIC REPUBLIC									
Total Trade	28.5	205.4	390.2	526.7	348.1	281.7	202.9	304.1	174.7
U.S. Exports	17.2	170.1	354.5	478.3	295.7	222.8	139.0	136.9	72.5
U.S. Imports	11.3	35.3	35.7	48.4	52.4	58.9	63.9	167.2	102.2
U.S. Trade Balance	5.9	134.9	318.8	429.8	243.3	163.9	75.1	[30.2]	[29.7]
HUNGARY									
Total Trade	110.7	166.2	189.7	197.9	218.3	213.7	282.5	330.0	335.1
U.S. Exports	76.1	97.7	77.6	80.0	78.0	68.3	110.5	88.2	94.4
U.S. Imports	34.6	68.5	112.1	117.9	140.3	145.4	172.0	241.8	240.7
U.S. Trade Balance	41.5	29.2	[34.5]	[37.9]	[62.3]	[77.1]	[61.6]	[153.6]	[146.3]
POLAND									
Total Trade	823.2	1115.9	1212.4	1173.0	1082.3	524.5	532.3	562.7	485.3
U.S. Exports	580.1	677.0	786.3	713.7	681.4	295.3	323.6	318.3	238.0
U.S. Imports	243.1	438.9	426.1	459.3	400.9	229.2	208.7	244.4	247.3
U.S. Trade Balance	337.0	238.1	360.2	254.4	280.5	66.1	114.9	73.9	[9.3]
ROMANIA									
Total Trade	322.3	664.0	829.6	1063.2	1116.6	603.9	739.1	1217.6	1158.6
U.S. Exports	189.3	317.4	500.5	722.0	504.2	223.7	186.1	248.6	208.2
U.S. Imports	133.0	346.6	329.1	341.2	612.4	380.2	553.0	969.0	9504
U.S. Trade Balance	56.3	[29.2]	171.4	380.7	[108.2]	[156.5]	[366.9]	[720.4]	[742.2]

	1975	1978	1979	1980	1981	1982	1983	1984	1985
EASTERN EUROPE									
Total Trade	1421.7	2382.1	3039.2	3406.2	3216.2	1912.3	1979.5	2643.8	2444.5
U.S. Exports	944.9	1415.7	2056.2	2339.9	1900.1	1000.3	883.7	894.5	780.2
U.S. Imports	476.8	966.4	983.0	1066.3	1316.2	912.0	1095.8	1749.3	1664.3
U.S. Trade Balance	468.1	449.3	1073.2	1273.6	584.0	88.4	[212.2]	[854.8]	[884.1]
SOVIET UNION									
Total Trade	2086.9	2502.8	4476.2	1997.3	2716.7	2839.7	2377.6	3884.0	2865.4
U.S. Exports	1832.7	2249.0	3603.6	1512.8	2340.2	2592.6	2002.9	3283.9	2422.8
U.S. Imports	254.2	253.8	872.6	484.5	376.5	247.1	374.7	600.1	442.6
U.S. Trade Balance	1578.5	1995.2	2731.0	1028.2	1963.6	2345.5	1628.2	2683.8	1980.2
EUROPEAN CMEA									
Total Trade	3508.6	4884.9	7515.4	5403.4	5933.0	4751.9	4357.0	6527.8	5309.9
U.S. Exports	2777.6	3664.7	5659.8	3852.6	4240.3	3592.9	2886.5	4178.4	3203.0
U.S. Imports	731.0	1220.2	1855.6	1550.8	1692.7	1159.0	1470.5	2349.4	2106.9
U.S. Trade Balance	2046.6	2444.5	3804.2	2301.8	2547.6	2433.9	1416.0	1829.0	1096.1
WORLD									
Total Trade	213532.0	329726.0	384336.0	477614.0	506939.0	467078.0	470364.0	559042.0	574759.0
U.S. Exports 2/	107652.0	143681.0	178413.0	220630.0	233587.0	212193.0	200486.0	217865.0	213133.0
U.S. Imports	105880.0	186045.0	205923.0	256984.0	273352.0	254885.0	269878.0	341177.0	361626.0
U.S. Trade Balance	1772.0	[42364.0]	[27500.0]	[36354.0]	[39765.0]	[42692.0]	[69392.0]	[123312.0]	[148493.0]

1/ Exports are U.S. domestic and merchandise exports, f.a.s. (free alongside ship), excluding special category exports. Imports are general merchandise imports, c.i.f. (cost, insurance, freight).

2/ Including special category exports.

SOURCES: U.S. Department of Commerce: Bureau of the Census and International Trade Administration, Office of Trade and Investment Analysis. U.S. International Trade Commission.

APPENDIX B

EUROPEAN CMEA HARD-CURRENCY TRADE 1/

(Millions of U.S. Dollars)

	1975	1978	1980	1981	1982	1983	1984	1985 2/
BULGARIA 3/								
Exports	937	1548	3021	3262	3298	2864	3133	3085
Imports	1498	1400	2035	2620	2684	2482	2542	3125
Trade Balance	[561]	148	986	642	614	382	591	[40]
CZECHOSLOVAKIA 3/								
Exports	2379	3122	4544	4403	4357	4142	4122	4020
Imports	2745	3503	4520	4079	3842	3372	3328	3339
Trade Balance	[366]	[381]	24	324	515	770	794	681
GERMAN DEMOCRATIC REPUBLIC 3/								
Exports	3062	4158	5898	6714	7602	7930	8075	7930
Imports	4187	5295	7620	6648	6665	6606	7018	7140
Trade Balance	[1125]	[1137]	[1722]	66	937	1324	1057	790
HUNGARY 4/								
Exports	2209	3178	4863	4884	4876	4848	4965	4478
Imports	2500	3959	4586	4432	4111	3970	3729	4181
Trade Balance	[291]	[781]	277	452	765	878	1236	297
POLAND 3/								
Exports	4123	5498	7506	5000	5222	5236	5552	6148
Imports	6796	7368	8488	5260	3774	3802	4143	5071
Trade Balance	[2673]	[1870]	[982]	[260]	1448	1434	1409	1077
ROMANIA 4/								
Exports	2839	4040	6503	7216	6235	6246	6392	6631
Imports	2950	4632	8037	7012	4710	4558	4706	4606
Trade Balance	[111]	[592]	[1534]	204	1525	1688	2186	2025

	1975	1978	1980	1981	1982	1983	1984	1985
EASTERN EUROPE								
Exports	15549	21544	32335	31479	31590	31266	32739	32292
Imports	20676	26157	35286	30051	25786	24790	25466	27512
Trade Balance	[5127]	[4613]	[2951]	1428	5804	6476	7273	4780
SOVIET UNION 5/								
Exports	9780	17281	27784	27978	31977	32428	31726	26800
Imports	14577	17026	26070	27778	27544	27715	27292	25800
Trade Balance	[4797]	455	1714	200	4433	4713	4434	1000
EUROPEAN CMEA								
Exports	25329	38825	60119	59457	63567	63694	64353	59092
Imports	35253	43183	61356	57829	53330	52505	52905	53312
Trade Balance	[9924]	[4358]	[1237]	1628	10237	11189	11448	5780

1/ Export and Import data are FOB.

2/ Preliminary.

3/ Trade with the Developed West and LDCs. Figures do not include intra-CMEA hard-currency trade.

4/ Includes all known hard-currency trade.

5/ Includes all known non-CMEA hard-currency trade.

SOURCE: U.S. Department of Commerce: International Trade Administration, Office of Trade and Investment Analysis.

APPENDIX C

EUROPEAN CMEA GROSS AND NET HARD-CURRENCY DEBT 1/

(Millions of U.S. Dollars)

	1975	1978	1980	1981	1982	1983	1984	1985 2/
BULGARIA								
Gross Debt	2640	4263	3550	3050	2750	2390	2220	3000
Net Debt	2257	3710	2760	2225	1750	1320	800	1200
Commercial Assets 3/	383	553	790	825	1000	1078	1420	1800
CZECHOSLOVAKIA								
Gross Debt	1132	3206	4920	4500	4050	3950	3500	3700
Net Debt	827	2513	3670	3400	3300	3010	2500	2700
Commercial Assets 3/	305	693	1250	1100	750	940	1000	1000
GERMAN DEMOCRATIC REPUBLIC 4/								
Gross Debt	5388	9666	14100	14900	13000	12840	12190	13100
Net Debt	3748	832	11600	12300	10700	9450	7630	7300
Commercial Assets 3/	1640	1346	2500	2600	2300	3390	4560	5800
HUNGARY								
Gross Debt	3135	7290	9090	8700	7700	8260	8500	10700
Net Debt	2195	6349	7000	7050	6600	6690	6400	8000
Reserves 5/	940	941	2090	1650	1100	1570	2100	2700
POLAND								
Gross Debt	8014	17844	25000	25000	24800	26400	28200	30000
Net Debt	7381	16972	24530	24700	23800	25130	26650	28500
Commercial Assets 3/	633	872	470	800	1000	1270	1550	1500
ROMANIA 4/								
Gross Debt	2924	5221	9400	10160	9780	8760	7100	6000
Net Debt	2449	4992	9100	9815	9400	8250	6400	5700
Reserves 5/	475	229	300	345	380	510	700	300

	975	1978	1980	1981	1982	1983	1984	1985
EASTERN EUROPE								
Gross Debt	23233	47490	66060	66810	62080	62600	61710	66500
Net Debt	18857	42856	58660	59490	55550	53850	50380	53400
Commercial Assets/ Reserves	4376	4634	7400	7320	6530	8750	11330	13100
SOVIET UNION								
Gross Debt	10500	16400	17800	20900	20000	20500	20400	25000
Net Debt	7400	10400	9200	12500	10000	10900	10400	15000
Commercial Assets 3/	3100	6000	8600	8400	10000	9600	10000	10000
EUROPEAN CMEA								
Gross Debt	33733	63890	83860	87710	82080	83100	82110	91500
Net Debt	26257	53256	67860	71990	65550	64750	60780	68400
Commercial Assets/ Reserves	7476	10634	16000	15720	16530	18350	21330	23100

1/ All knwon outstanding hard-currency debt, including amounts owed to communist countries and LDCs. All debt figures are based on the U.S. dollar exchange rate prevailing at the end of the year indicated. No adjustments have been made to reflect substantial dollar appreciation since 1980.

2/ Preliminary.

3/ Deposits in Western banks as reported by the Bank for International Settlements and other sources.

4/ Including debt owed to the F.R.G. government and F.R.G. commercial banks.

5/ Foreign exchange reserves (excluding gold) as reported by the IMF.

SOURCE: U.S. Department of Commerce: International Trade Administration, Office of Trade and Investment Analysis.

FOOTNOTES

[1] Willem J. Elzinga, "The Undervalued Economic Dimension of the CSCE Process," *NATO Review,* v. 33, August 1985, p. 16.

[2] See: Organization for Economic Cooperation and Development, *East-West Trade, Recent Developments in Countertrade* (Paris: OECD, 1981) p. 9.

[3] "CMEA" stands for the Council for Mutual Economic Assistance, also known as "CEMA," "COMECON," or "SEV" (from the Russian), which is the multilateral organization of communist countries for economic cooperation. Its European members, to which reference is made here, are the USSR, Bulgaria, Czechoslovakia, the G.D.R., Hungary, Poland and Romania.

[4] Much of the information contained in this section can be credited to: U.S. Department of Commerce, International Trade Administration, "Statistical Abstract of East-West Trade and Finance," Project DIE-47-86, March 1986. For the values of European CMEA hard-currency trade and debt, see appendices #2 and #3.

[5] U.S. Department of Commerce.

[6] According to the Department of Commerce, statistics on commercial assets may understate reserve levels because of the difficulty of estimating deposits in non-BIS (Bank for International Settlements) banks. In addition, reserve levels are made up of both liquid and non-liquid assets and thus often overstate country liquidity. The size of Soviet reserves vis-a-vis debt does not include large holdings of gold, estimated to be worth almost $25 billion at the end of 1984.

[7] Rising every year since World War II, Soviet oil production peaked in 1983 and declined by 0.6% in 1984 and by 2.8% in 1985. Production levels for 1986 appear to have increased slightly over that of 1985. June 1986 production was 6% higher than June 1985 production, and January-June 1986 was 2.4% higher than January-June 1985. (*RCC Newsletter*, vol. X, no. 10, August 1, 1986, p. 2.)

[8] United Nations, Economic Commission for Europe, "Review of Recent and Prospective Trends, policies and Problems in Intraregional Trade," Trade/R.510, November 12, 1986, p.2.

[9] A foreign trade organization, commonly referred to as an FTO, is the governmental body, usually under the authority of the Ministry of Foreign Trade, responsible for foreign trade activity in a European CMEA country. In most of these countries, where there is a state monopoly of foreign trade, the FTO is the sole organization that can negotiate export and/or import contracts with foreign firms. In this regard, they act as the representative of the end-user, the enterprise that will actually use the item being imported or the producer which is selling the item. In recent years, some European CMEA countries have given foreign trade rights directly to the enterprises, thereby eliminating the middle-man role of the FTO.

[10] U.S.-U.S.S.R Marine Resources, Inc., is a joint venture between the United States and the Soviet Union which went into effect in 1976. Under the agreement, fish caught by U.S. fishermen are processed on Soviet factory ships and sold to Soviet purchasers or third countries. A Soviet citizen was given permission to work in Bellingham, Washington, and an American citizen was given permission to work in Nakhodka in connection with this joint venture.

[11] Business Eastern Europe, November 3, 1986, pp. 346-347.

[12] For a description of the expansion of Soviet foreign trade rights, see: U.S. International Trade Commission, Forty-Eigth Report to the Congress and the Trade Policy Committee on Trade Between the United States and the Nonmarket-Economy Countries During July-September 1986, USITC Publication 1932, December 1986, pp. 43-50.

[13] "On a Businesslike Basis: There will be Joint Enterprises," an Interview with I.D. Ivanov, Trud, February 4, 1987, pp. 1 and 3.

[14] The amendment prohibits the granting of MFN status or the extension of official or officially-backed credits to non-market-economy countries unless they permit free emigration. The President can, however, waive the emigration requirement if he certifies to Congress that doing so would promote the objectives of the amendment. Such a waiver is for one year only and must be renewed on an annual basis. The U.S. Congress has the power to disapprove the renewal by passage of a joint resolution.

[15] Replacing the 1979 Export Adminitration Act and a 16-month period during which export controls were administered under the International Emergency Economic Powers Act, the new Act makes 55 changes in the previous export administration law regarding controls for foreign policy, natinal security, and economic reasons. Export controls continue to be administered in groupings with considerable differentiation, with exports to Romania being the least restrictive of the European CMEA states, followed by Poland and Hungary, followed by the remaining European CMEA states.

[16] The Coordinating Committee for Multilateral Export Controls, more commonly known as COCOM, is an informal organization of the NATO countries, minus Iceland plus Japan, that coordinates export controls to the East on a multilateral level.

[17] Fishing in the 200-mile U.S. zone is authorized under the Magnuson Fisheries Conservation and Management Act of 1976, which permits countries to do such fishing only after having signed a Governing International Fisheries Agreement (GIFA)and being granted by the United States "directed fishing allocation." The first agreement with the Soviet Union was signed in 1976, and the U.S.S.R. was allocated an annual 400,000 -500,000 metric tons of fish in addition to the U.S.-caught fish from U.S.-U.S.S.R. Marine Resources, Inc. In January 1980, President Carter reduced the Soviet allocation to 75,000 metric tons as part of the Afghanistan sanctions. Carter did not terminate the GIFA or end Soviet purchases under the joint venture. For the next four years, however, the U.S.S.R. was not allocated any fish.

[18] The U.S.-Soviet Joint Commercial Commission, which is an inter-governmental body, should not be confused with the U.S.-U.S.S.R. Trade and Economic Council, which is a private organization. The United States has established joint commercial commissions with Poland, Hungary and Romania. The U.S. Chamber of Commerce, on the private level, has established bilateral economic councils with Bulgaria (which has since ceased to exist), Czechoslovakia, Hungary, Poland and Romania. In addition to the independent U.S.-U.S.S.R. Trade and Economic Council, a U.S.-G.D.R. Trade and Economic Council also exists. West European countries maintain similar organizations as well, although most often they are "mixed" commissions, made up of both business representatives and government officials. The United States technically keeps the private and public levels separate, although government officials often will appear before or send messages to meetings of the private councils.

[19] A session was scheduled for April 1980 but was cancelled after the Soviet invasion of Afghanistan in December 1979.

[20] As reported in the section on Soviet compliance with the Basket I provisions on Business Contacts and Facilities, apparently American business representatives have seen positive results from this Soviet promise.

[21] Aeroflot flights to the United States were restricted to two per week following the Soviet invasion of Afghanistan and were suspended altogether following the declaration of martial law in Poland. Following the downing of KAL 007 in 1983, the Aeroflot office in the United States was closed. Pan American World Airways operated direct flights to the USSR in the 1970s but discontinued service in 1978 because it was unprofitable.

[22] For details, see notes #14 & #15.

[22] United Nations, Economic Commission for Europe, "Review of Recent and Prospective Trends, policies and Problems in Intraregional Trade," Trade/R.510, November 12, 1986, p.3.

[23] While not strictly commercial, the agreement on settling outstanding claims between the two countries -- namely the issue of Czechoslovak gold held by the United States since World War II under the tripartite control of the United States, the United Kingdom and France; and U.S. citizens claims against the Czechoslovak Government for property nationalized after 1945 -- removed a stumbling block in relations. This agreement, signed in Prague on January 29, 1982, and entered into force on February 2, 1982, called for the return of 18.4 mmt of gold, worth over $250 million at the time. In return, U.S. claimants received a total of $81.5 million from Czechoslovakia. The 1974 Trade Act required that such an agreement must take place before any bilateral trade agreement could be brought into force.

[24] For details, see notes #14 & #15.

[25] For details, see footnotes #14 & #15.

[26] For details, see note #15.

[27] See note #18.

[28] For details, see notes #14 & #15.

[29] Poland still was unable to pay the $550 million it owed Western governments at the end of 1985 under the terms of this agreement. In March 1986, this amount was agreed to be paid over the course of 1986.

[30] See footnote #17.

[31] "United States Sanctions Against Poland: Statement by the Principal Deputy Press Secretary to the President," *Weekly Compilation of Presidential Documents*, vol. 20, no. 31 (August 6, 1984), p. 1109, as quoted in ITC, *40th Quarterly Report*, USITC Publication 1628, December 1984, pp. 49-50.

[32] See footnote #14.

[33] See footnote #17.

[34] The Holy See, Liechtenstein, Monaco and San Marino are CSCE signatories that do not belong to the ECE, and Albania, the Byelrussian SSR and the Ukrainian SSR are ECE members that did not sign the Final Act.

[35] For a thorough review of ECE activities pertaining to the Basket II provisions of the Helsinki Final Act and the Madrid Concluding Document, see the Report of Executive Secretary Klaus Sahlgren to the Vienna CSCE Follow-Up Meeting, November 1986.

[36] The Ad Hoc Meeting on Industrial Cooperation was held on schedule in July 1985, but the Special Meeting of Experts on Prospects for East-West Trade in the 1980s, originally scheduled for November 1985, was postponed until March 1986.

[37] In that the CSCE deals with European environmental concerns, primarily those of an East-West nature, this chapter will focus on multilateral environmental cooperation which includes the United States and Canada, as well as on U.S. bilateral cooperation with the countries of the East bloc. There are, however, environmental matters play an important role in U.S.-Canadian relations.

[38] Much of the information in this section is credited to: Christine L. Zvosec, "Environmental Deterioration in Eastern Europe," World Affairs, vol. 147, Fall 1984.

[39] "Excuse Me for Breathing," The Economist, August 11, 1984.

[40] Theodore Shabad, "Soviet Plugs Leak, and Then Restores It," New York Times, November 28, 1984.

[41] Eric Bourne, "East Bloc Faces Up to Pollution," Christian Science Monitor, September 17, 1985.

[42] Eric Bourne, "East Europeans Take Up the Chorus Against Supposed Damage from Acid Rain," Christian Science Monitor, January 31, 1986.

[43] Theodore Shabad, "Acid Rain Reported Over Soviet Union," New York Times, April 24, 1986.

[44] Sergei Voronitsyn, "USSR Assumes Minimal Obligations at Ecology Conference," Radio Liberty Research, RL 276/84, July 17, 1984, p.2.

[45] Vladimir Sobell, "Central Planning and the Environment," Radio Free Europe Research, RAD Background Report/88, July 1, 1986.

[46] Toomas Ilves, "An Open Letter of Protest from Estonian Scientists," Radio Free Europe Research, Baltic Area SR/4, July 18, 1986.

[47] The United States did not sign the protocol because of the major reductions it already achieved prior to 1980. For details, see: Richard E. Benedick, Deputy Assistant Secretary of State for Oceans and International Environmental and Scientific Affairs, "Transboundary Air Pollution," a statement before the Executive Body for the Convention on Long-Range Transboundary Air Pollution of the U.N. Economic Commission for Europe, Helsinki, Finland, July 8, 1985. Printed by the Bureau of Public Affairs, U.S. Department of State, Current Policy No. 723.

[48] For a thorough review of ECE activities pertaining to the Basket II provisions of the Helsinki Final Act and the Madrid Concluding Document on environmental protection, see the Report of Executive Secretary Klaus Sahlgren to the Vienna CSCE Follow-Up Meeting, November 1986, paragraphs 93-108.

[49] C. Hohenemser, M. Deicher, A, Ernst, H. Hofsass, G. Linder, and E. Recknage', "Chernobyl: an Early Report," Environment ,v. 28, June 1986, pp. 9-10.

[50] David Marples, "Chernobyl in Ukraine's Nuclear Energy Program," Soviet Nationality Survey, vol. III, No. 4-5, April-May 1986, pp. 4-6.

[51] Much of the material contained in this section comes from various reports on: USSR State Committee on the Utilization of Atomic Energy, The Accident at the Chernobyl Nuclear Power Plant and its Consequences (Information compiled for the IAEA Experts' Meeting, 25-29 August 1986, Vienna, Austria), and a press conference, held by Soviet officials on August 21 in Moscow, explaining the accident. In particular, see: Celestine Bohlen, "Chernobyl Blunders Spelled Out," New York Times, August 22, 1986, and "Excerpts from the Report on Chernobyl and News Conference in Moscow," New York Times, August 22, 1986.

[52] Victor Gilinsky, "The Coming Chernobyl Report," Washington Post, August 17, 1986.

[53] Paris Domestic Service in French, April 30, 1986, as translated in: Foreign Broadcast Information Service, Daily Report/Soviet Union (hereafter noted as FBIS/SU), Supplement, May 1, 1986, p. R3.

[54] Baltimore Sun, July 16, 1986.

[55] Pravda, September 1, 1986, as translated in: FBIS/SU, September 11, 1986, p. 10.

[56] Kiev Domestic Service, May 2, 1986, as translated in: FBIS/SU, May 2, 1986, p. R3.

[57] Moscow Television Service, August 5, 1986, as translated in: FBIS/SU, August 6, 1986, pp. R23-24.

[58] Toomas Ilves, "Estonians Help at Chernobyl," Radio Free Europe Research, RAD Background Report/122 (Estonia), September 10, 1986.

[59] Moscow TASS, April 28, 1986, as translated in: FBIS/SU, Supplement, April 29, 1986, p. R1.

[60] "Ukrainians in U.S. Hit 'Wall of Silence,'" Washington Times, May 1, 1986.

[61] Krasnaya Zvezda, May 1, 1986, as translated in: FBIS/SU, May 1, 1986, p. R1.

[62] Moscow Television Service, April 30, 1986, as translated in: FBIS/SU, May 1, 1986, pp. R1-2.

[63] Moscow TASS, April 28, 1986, as translated in: FBIS/SU, Supplement, April 29, 1986, p. R1.

[64] "The Chernobyl Accident" (Address of Mikhail Gorbachev), May 14, 1986, *Vital Speeches*, June 15, 1986, 52: 514-17.

[65] The White House, Office of the Press Secretary, Statement by the Principal Deputy Press Secretary, May 14, 1986.

[66] John Goshko, "For Forgery Specialist, A Case Close to Home," *Washington Post*, August 19, 1986.

[67] C. Hohenemser, M. Deicher, A, Ernst, H. Hofsass, G. Linder, and E. Recknage', "Chernobyl: an Early Report," *Environment*, v. 28, June 1986, p. 39.

[68] The explosion of a nuclear weapon releases a tremendous amount of short-term radioactive particles. As they decay quickly, the long-term effects of the explosion are less severe than emissions of radiation from a nuclear plant.

[69] "Soviet Emission Outdid Bomb Test, Study Says," *Chicago Tribune*, September 24, 1986.

[70] R. Jeffrey Smith and Michael Weisskopf, "Chernobyl Toll Seen in Thousands," *Washington Post*, August 23, 1986.

[71] Stuart Diamond, "Two Experts Foresee Deaths of 24,000 Tied to Chernobyl, *New York Times*, August 27, 1986.

[72] "Soviets Forecast 6,530 Fatalities From Chernobyl," *Wall Street Journal*, August 21, 1986.

[73] Statement of John Goffman Before the American Chemical Society, Anaheim, California, September 9, 1986.

[74] *RCC Newsletter*, vol. X, no. 10, September 1, 1986, p. 3.

[75] Statment of Matthew J. Sagers, Bureau of the Census, Before the Subcommittee on European Affairs, Committee on Foreign Relations, United States Senate.

[76] "Statement of the Temporary Coordinating Commission of Solidarity (T.K.K.), May 13, 1986, as translated in: *Committee in Support of Solidarity Reports*, Issue No. 43, July 30, 1986.

[77] "On Radioacivity in the Krakow Area and Proper Preventive Measures, a statement of the Malopolska Regional Solidarity Commission," as translated in: *Committee in Support of Solidarity Reports*, Issue No. 43, July 30, 1986.

[78] *Charter 77 Document No. 15/86*, May 1986.

[79] Statement of the American Red Cross Concerning Chernobyl.

[80] Dr. Richard Champlin, "With the Chernobyl Victims, Los Angeles Times Magazine, July 6, 1986.

[81] Paul Gafton, "Chernobyl and Romania's Debts to Western Banks," Radio Free Europe Research, Romanian SR/8, July 17, 1986.

[82] "The Chernobyl Accident" (Address of Mikhail Gorbachev), May 14, 1986, Vital Speeches, June 15, 1986, 52: 514-17.

[83] "No Chernobyl Possibility in U.S.: Report," Chicago Tribune, August 28, 1986.

[84] As quoted in: "The Lesson of Chernobyl," Wall Street Journal, August 28, 1986.

85 Stuart Diamond, "Design Flaws, Known to Moscow, Called Major Factor at Chernobyl," New York Times, August 26, 1986.